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VILLAGE INVESTMENT IN DEVELOPMENT:  
AN INDEX OF  
COUNTERINSURGENCY PROGRAM IMPACT

OCTOBER 1970  
REVISED MARCH 1971

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ADVANCED RESEARCH PROJECTS AGENCY  
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ARPA Order No. 1169

submitted by  
ASIA-PACIFIC OFFICE  
AMERICAN INSTITUTES FOR RESEARCH  
BANGKOK, THAILAND

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*Per telecon with Fred Kather.*

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## RESEARCH SUMMARY

VILLAGE INVESTMENT IN DEVELOPMENT: AN INDEX OF COUNTER-INSURGENCY PROGRAM IMPACT. AMERICAN INSTITUTES FOR RESEARCH, ASIA-PACIFIC OFFICE. (Contract DAAH01-68-C-1920) ARPA Order No. 1169, Unclassified, October 1970.

### PROBLEM

Adequate criteria have not been developed for assessing action programs designed to strengthen the resistance of rural communities to insurgency and subversion. In the absence of such criteria, program evaluations have been limited largely to internal audits of program implementation. The more important question of a program's actual impact on population responses could not be addressed. The first major goal of the research was therefore the methodological one of providing the instruments necessary for impact assessment.

The key conceptual task was to isolate the essential characteristics of a community that would make it resistant to subversion in spite of the changes, problems, and dissatisfactions that are inevitable concomitants of modernization.

The basic hypothesis developed in the course of the research is that:

A community is resistant to subversion to the extent that its inhabitants are investing their time, effort, and money in the lawful opportunities for economic, political, and social improvements that are available to them.

This report is concerned with the development of instruments and procedures for measuring village investment. Data are presented relevant to the suitability of the Index of Investment as an intermediate criterion of program impact and to its practical utility as an operational data collection procedure.



## METHOD

From a review of the descriptive literature on rural Thailand and from interviews with knowledgeable persons, some 250 specific examples of investment behavior were collected. These incidents, classified into the three categories of Political, Economic, and Social investments, generated a large number of potential indicators; samples from this pool were used in the various measurement approaches which are described in detail in the report.

The first instrument developed was a Community Development Worker Report Form, consisting of some thirty village-descriptive items. This form was used in three studies of 49, 71, and 50 villages respectively. The information reported on the Form was verified by a field research team in a six-village pre-test, and compared to several other methods in the fifty village study.

The CD Worker Report Form is a tambol-level instrument, since a CD Worker is responsible for all villages in a tambol. Procedures were also developed for obtaining village investment scores using Amphoe sources only; for using village sources without actually visiting the village; and for use during a field team visit to the village. In addition to these four procedures for determining an investment score, ranking procedures were also developed for use at village, tambol, and Amphoe levels. All of these procedures were field tested in the study of fifty villages conducted in four Northeastern Amphoe in August 1970.

## FINDINGS

1. Reliable measures of the construct "village investment" can be obtained through the use of relatively short sets of objective indicators.

Some components are not reliably measured by some of the present instruments, but (a) each component can be reliably measured by

more than one approach and (b) some moderately reliable procedures can certainly be upgraded. It seems fair to say that adequate reliability can be guaranteed for a variety of operational uses.

2. The components of the construct (political, economic, and social investments) are consistently and significantly related to one another.

If the obtained measures turned out to be uncorrelated, the postulate of a general characteristic would be untenable. If, on the other hand, the correlations were extremely high (.9) then only a general characteristic would remain, and the separate classes of investment would have no utility. Confirmation thus requires that the correlations be neither "very high" nor "very low." In the three studies reported, the correlations between components were:

	E	S	E	S	E	S
P	.57	.62	.67	.75	.62	.64
E		.57		.70		.55
	N = 49		N = 71		N = 50	

These data offer strong support for the utility of both composite (general) and component (specific) measures of investment.

3. Scores obtained from the objective instruments are consistently related to the evaluative judgments of experienced officials.

If investment is an important attribute of a village, a measure of investment should show substantial agreement with gross judgments of village progress made by knowledgeable officials. These judgments are not criteria against which the investment score is to be validated; but if there were no agreement between the two, one could defend the investment measure only by arguing that the products of investment were wholly invisible or that the officials

were not really knowledgeable after all. In the three studies, the correlations between scores and judgments were:

	First Tryout	Second Tryout	Fifty Village Study
P	.66	.68	.56
E	.48	.62	.71
S	.58	.78	.55
Composite	.65	.80	.71

It is clear that village investment, as measured by objective indicators, is consistent with the general impressions of village progress held by Amphoe and tambol-level officials.

4. Comparable scores can be obtained via several approaches.

The average inter-source correlation (corrected for attenuation) is .90. The comparability of scores derived from Amphoe, tambol, and village sources permits alternate strategies of measurement to be adopted in response to the different situations which would be encountered in large scale applications. Appendix A considers several such strategies. Procedures for measuring investment are flexible rather than rigid.

5. The measurement procedures are relatively inexpensive.

Costs and personnel requirements for both collection and analysis can be specified for any given application. They appear to be low enough to pose no obstacle to adoption by RTG agencies.

## CONCLUSIONS

Taken together, the findings support the assertion that:

There is an existing capability (instruments, procedures, instructions for use) for measuring the extent to which a village is investing its resources in political, economic and social development.

## RECOMMENDATIONS

Without further development, the measurement procedures could be used by RTG agencies as:

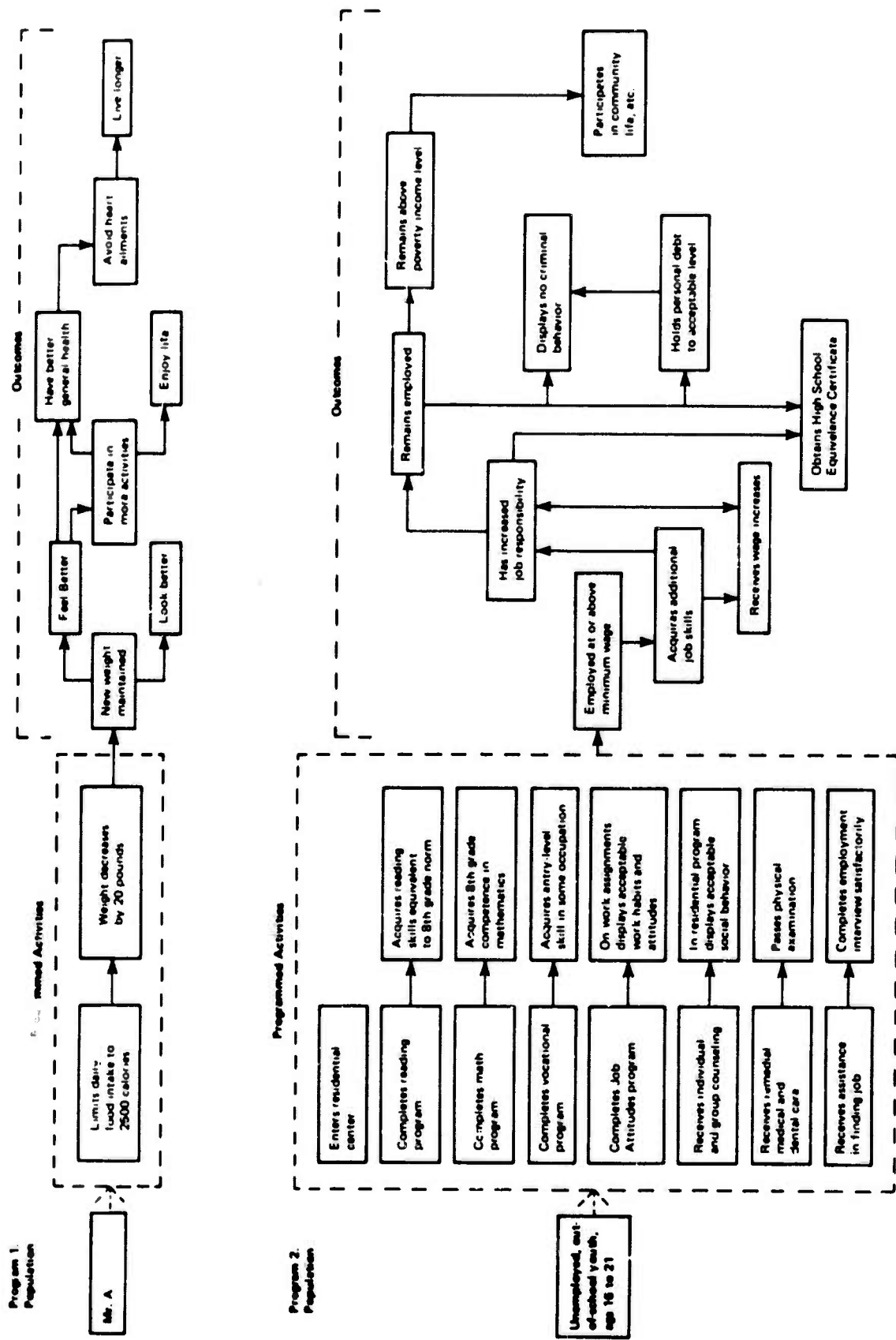
1. a device for monitoring the over-all course of development in a given area,
2. a device for evaluating a particular program, and
3. a census-type measure for national planning or assessment.

But the capability should be extended and refined by further research and development directed toward:

1. the measurement of opportunity, so that the investment behavior can be "corrected" for varying levels of available opportunity,
2. refinement of the Index, to make it more sensitive to:
  - a. short-run change
  - b. intra-village differences
  - c. the kinds of investment behavior most appropriate to a given village,
3. understanding the disposing conditions that lead to greater or lesser investment, and
4. validating the Index against the ultimate criteria.

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Figure 1.1 Schematics for Two Programs



These are "givens" for program design.

2. The programmed activities, on the other hand, are not inherent in the problem statement, but are chosen by the programmer. They represent the particular approach to the problem which he decided to adopt, and it is always possible to identify many alternative approaches that might have been tried instead.\*
3. The programmed activities are expected to lead to a progression of intended outcomes which can be displayed along a time-line as successive steps toward the goal. The early outcomes are, like the programmed activities, selected by the programmer, who believes them to be (a) logical consequences of the programmed activities, and (b) logical steps toward the ultimate outcome to be achieved.
4. A program is thus a linked set of hypotheses about the consequences of certain actions. Each solid arrow in Figure 1.1 is an hypothesized cause-and-effect relationship between the two components which it connects.

Each of these characteristics is central to the concepts of "program impact" and "program impact assessment."

B. The Nature of Impact Assessment.

Any activity that is designed to check the status of any of the above components in an ongoing program can reasonably be described as a

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\*This becomes evident very quickly if one tries to "reason backwards" in Figure 1.1. Given a particular outcome, one need not arrive at the same antecedent that was selected by the programmer; alternatives are always available.

"program evaluation." Whether its purpose is the mainly scientific one of testing the validity of the hypotheses projected by the program planner, or the largely administrative one of appraising the quality of performance of certain field personnel, whether its methodology is based on specially developed assessment techniques or limited to the impressions of a presumably knowledgeable observer, the same term can be (and customarily has been) applied. The domain of "evaluation" is all-embracing.

The domain of "impact assessment," as defined in this project, is much more restrictive, for it excludes all of the components that are "internal" to the implementation of the program, and considers only events that occur after the programmed activities have been completed. The focus is on payoff in terms of ultimate program objectives rather than on the quality of program implementation.

The schematics of Figure 1.1 may help to clarify this distinction. At the left of the chart, under "Programmed Activities," are certain basic hypotheses such as the following two propositions:

- if Mr. A limits his daily intake to 2,500 calories he will (in some specified time) lose twenty pounds; and
- if Trainee X completes the reading program his reading ability will rise to the 8th grade norm.

Both must happen during the course of program implementation if the subsequent changes expected are to have a chance to occur. And as part of program evaluation, it is clearly necessary to check

- 1) that the specified program inputs really are made (e.g., that caloric intake really is limited to 2,500 per day), and



- 2) that the programmed standards really are being met (e.g., that the reading instruction really is good enough to produce skills equal to those of students in the 8th grade).

The task in this type of check or "audit" is essentially one of input verification, which poses no conceptual difficulty and few measurement problems. Daily records of program performance (e.g., caloric intake, sections of the reading program that have been completed) and periodic progress measures (e.g., weight in pounds, score on a reading test) provide all of the data required.\*

The province of impact assessment begins after these internal checks, with the relationships charted under the "Outcomes" section of the schematic. The questions here are directed at the validity of the hypotheses that have been projected; e.g.,

- Does Mr. A's weight loss in fact lead to better health?
- Do Trainee X's new reading skills indeed help him to maintain employment?

That Mr. A has lost weight and that Trainee X does read better (i.e., the internal outcomes of the two programs) are assumed for purposes of impact assessment.

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\*Internal evaluation can become highly complex if circumstances require that efficiency also be measured. Determining that a specific reading program is better in cost/benefit terms than alternative methods can be a sizeable research undertaking. The above discussion is limited to the basic verification problem that is in fact the purpose of most program evaluations.

In the design of operational impact assessments, the most critical decision that has to be made is which of the outcomes to measure. The assessment can focus on the ultimate criterion of program success, which is the achievement of the final objective shown in the last box of the schematic; or on an intermediate criterion, reflecting the achievement of one of the preparatory goals shown in the earlier boxes; or on a combination of ultimate and intermediate program effects. The feasibility of obtaining reliable assessment results and the utility of these data for program improvements both depend on the soundness of the tactic adopted.

The primary advantage of working at or near the ultimate criterion level, of course, is that this offers the most valid results. Showing that drop-outs who have received training under the program have a better record of getting and holding jobs than drop-outs who have not had these courses is a more telling index of program achievement than simply showing that these trainees are better able to find employment. Showing that they also advance in their jobs is still more conclusive. And showing that they eventually become contributing citizens is the most convincing datum of all. Assessments based on the more intermediate criteria leave unanswered the question of "Did the project accomplish that which was really intended?"

A second important advantage of more ultimate criteria is that the same index can usually be applied to a number of different action programs to compare their effects. As earlier noted, there are many alternative ways of approaching the same objective, and it is highly desirable to be able to determine which are the most effective. That

an ultimate criterion is a more suitable yardstick for comparisons should be clear from the schematic. An index of life span can be applied to a greater variety of health-support programs than an index based only on heart ailments; and this, in turn, is more broadly applicable than an index based only on weight. The more intermediate the criterion, the more closely it is tied to the specifics of a particular programmatic approach.

The disadvantages of working with ultimate criteria lie in the logistics. By definition, ultimate criterion data require more time to mature than intermediate measures; and sometimes -- as in checking whether trainees eventually become contributing citizens, for example -- the program manager cannot wait the requisite years for feedback information. Also, the collection of ultimate criterion data is generally expensive, and, in certain instances (such as in assessing the impact of a training program on performance in combat) can entail sizeable risks. Technical problems may be encountered as well in the design of suitable instruments (e.g., in building a reliable index of "good citizenship behavior"), in assembling a sufficiently large sample of cases for statistical interpretation (e.g., in assessing the impact of safety measures on airline accident rates), in controlling the impact of the other variables that might affect the results (e.g., in relating life span to the impact of weight only), and in meeting all of the other requirements of sound follow-up studies. Assessments based on ultimate criteria are invariably difficult to bring off; and, not infrequently, impossible to implement within the practical constraints on the research.

But, relying solely on intermediate criteria is an unsatisfactory solution. For these are necessarily limited to partial data, and can even result in conclusions that are totally wrong.\* Some reasonable compromise between the validity of the ultimate criterion and the practicability of the intermediate criterion usually has to be found.

The compromise that has generally proved most effective is

- 1) To base operational impact assessments, especially when they require repeated measurements (at varying times or places, or for a number of action programs), on intermediate criteria, selected to be as close as practicable to the ultimate program objectives; and
- 2) To show that these intermediate measures are in fact related to the ultimate criterion, by carrying out a special validity study, which compares the results obtained from the two under reasonably controlled experimental conditions.

This limits the costs and difficulties of working with ultimate criteria to the validity study, and yet provides practical criteria of demonstrated effectiveness for use in continuing program assessments.

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\*A dramatic illustration of this occurred in an assessment of the impact of a newly-constructed highway in a South American country. Using increases in marketing activity as the criterion, the study showed that there was considerable impact on mestizo communities but no impact on Indian communities, and suggested that linking Indian communities to marketing centers would be a waste of development funds. But significant social changes were in fact occurring in the Indian communities, and showed up two years later on more ultimate criterion measures. Relying solely on measures of the immediate effects would have led to a wrong decision.

### C. Purpose of the Present Research.

The AIR Impact Assessment Project was launched because adequate criteria have not been developed for assessing action programs that are to strengthen the resistance of rural communities to insurgency and subversion. Evaluation of such programs has been limited largely to internal audits of the efficiency of program implementation - the questions of actual payoff in terms of positive population responses could not, in the absence of suitable measures, be adequately addressed. And the first major goal of the research was therefore the methodological one of providing the instruments necessary for impact assessment.

The starting point was to try to apply the above basic considerations to the domain of anti-insurgency action programs. In this domain, schematics of the cause-effect relationships, real or hypothesized, do not exist; and it was necessary to begin with such seemingly elementary questions as

- What is the ultimate criterion of success of an anti-insurgency program as it pertains to specific population responses? and
- What are the intermediate criteria of progress toward the ultimate goal that may be used in impact assessment?

The conceptual complexities posed by these questions were substantial, as described in the following chapter.

## II. CRITERIA FOR PROGRAMS DIRECTED AT POPULATION RESPONSES

### A. Ultimate Criterion Measures.

The first question that had to be asked was, "What is the ultimate criterion of success in an anti-insurgency context for action programs that are to strengthen population responses?" What exactly is it that people are supposed to do as a result of the program? What are the desired target behaviors?

Certain of these behaviors are readily apparent. These are the behaviors that apply directly to confrontations between the government and the insurgents. A villager clearly

- should not join the insurgents,
- should not give food to the insurgents,
- should not provide intelligence to the insurgents, etc.,

and just as clearly

- should provide intelligence to government units,
- should defend himself against the insurgents,
- should volunteer his services to security units, etc.

All population responses that either deny support to the insurgents or contribute to the government's anti-insurgent activities can appropriately be considered as target behaviors.

The importance of these behaviors cannot be denied. But it is perhaps equally important to recognize that they constitute only part of the ultimate criterion for impact assessment. On both conceptual and

practical grounds, an index based solely on the needs of suppression operations would not constitute an adequate measure of program achievement.

Conceptually, the shortcoming of such a criterion lies in the implication that the essentially negative objective of defeating the present insurgency at the present moment in time is the principal goal of all anti-insurgency programs. This surely is too narrow a view. The ultimate goal is to strengthen the polity of the country in a positive and more lasting way, so that it can withstand this and any other threats to its survival. It is not simply bringing about the absence of insurgency but creating the positive opposite of insurgency that is the true objective.\*

From a practical point of view, an ultimate criterion that requires a confrontation with the insurgents could not be applied to communities in which the insurgents have as yet made no incursions. And, because prevention is a key aim of anti-insurgency programs, this is a serious limitation. Clearly, a community's resistance to subversion can be strengthened whether or not any insurgents are present, and the criteria of program impact should reflect such prophylactic gains as an important achievement.

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\*This goal has received limited attention in counter-insurgency planning, as evidenced by the fact that there is not even a term descriptive of the positive social condition desired. To the project staff, the shift in emphasis from anti-insurgency to polity strength seems essential.

The appropriate criterion of ultimate impact, therefore, emerges as a positive social condition which can perhaps be best labeled as "polity strength." As an operational definition, two tangible characteristics of a strong polity can be suggested:

- 1) When situations arise that threaten the polity (such as attempts at subversion), the response of the population is one of resistance.
- 2) When situations arise that require individual contributions (such as the compromise of certain self-interests for the sake of the common good)\*, the response of the population is one of support.

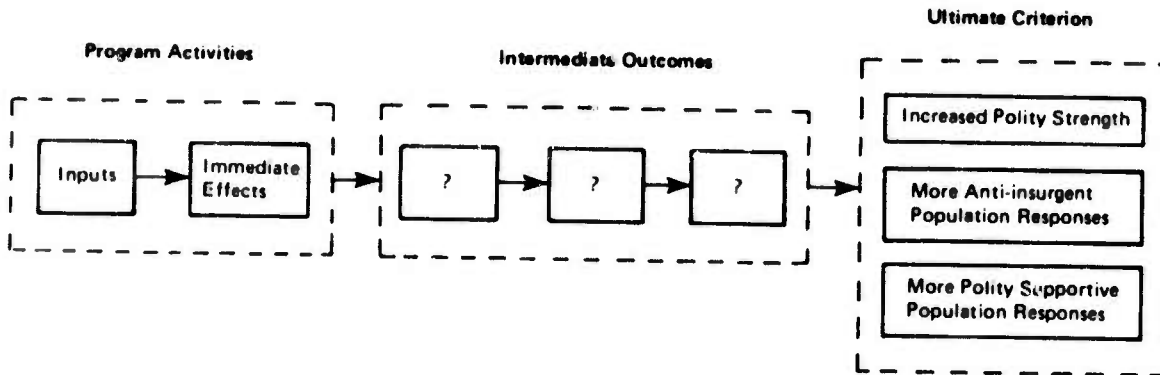
An index of the extent to which a given anti-insurgency program increases polity strength, as shown by increases in either or both of these symptomatic responses, is an appropriate measure of impact on ultimate program objectives.

Schematically, then, the gross features of the impact assessment model for anti-insurgency programs can be represented as follows:

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\*The willingness of the people to accept restraints on self-serving actions (e.g., wage and price controls) has been identified by Professor John D. Montgomery as perhaps the ultimate test of the strength of a polity. In his capacity as a member of the project's Advisory Panel, Dr. Montgomery was instrumental in formulating the approach described here.





And because improvements in this desired social condition can presumably be measured by either anti-insurgent or polity-supporting responses, the ultimate impact of an action program on any community (under insurgent pressure or not) can at least in principle be assessed.

The practical implications of this criterion present all of the logistic difficulties of ultimate criteria described in the preceding chapter. Incidents of support to the insurgents, being covert, are difficult to compile in a systematic manner. Incidents of anti-insurgent actions, which depend in large measure on insurgent initiatives, cannot be programmed to occur during the course of assessment studies. The measurement of the positive polity-supporting behaviors poses challenging definitional problems. The time frame from program input to discernible improvements in polity strength is apt to be long; the number of extraneous variables to be controlled in cause-effect studies is large. And the costs will almost certainly be proportionate to the complexity of the problems to be resolved.

In the context of a validity study, i.e., to demonstrate that a proposed intermediate criterion is in fact related to these ultimate impact measures, the logistics probably can be managed. It should be possible to find an adequate sample of locations for which the population responses to the insurgents can be sufficiently well documented to support validation research; or to piece together enough archival data on local conditions two or three years ago to permit "follow-up" validity studies based on criteria already available. The use of ultimate criterion measures once or twice for purposes of validation is feasible. Their repeated use for continuing operational impact assessments is not realistic. As always, a suitable intermediate criterion must be found.

B. Intermediate Criterion Measures.

The central problem in conceptualizing the social conditions that will strengthen the polity, and which therefore might serve as valid intermediate criteria, is that these must take account of the inevitability of change in existing social structures. The temptation to equate the strength of a polity with the extent to which no one is "rocking the boat" must be resisted. A viable society is continually changing, and static criteria, implying social stagnation, are unrealistic.

The nature of this problem and the related pitfalls is perhaps best illustrated by the two approaches to intermediate criteria that have been the most frequently used in Thailand:

1. The first of these has been based on the central concept of problem-reduction. The assumption has been that because the insurgents have exploited certain economic, social, and political problems, a reduction of these problems in a given

community will increase its immunity to subversion. Over the very long-run, this assumption must be essentially correct. If, over a very long period, a government is generally responsive to the problems of the governed, revolutionary potential should be reduced. But problem-reduction, however relevant it may be as a programming principle, is of no value as a criterion. For in a developing society (and surely in Thailand), the elimination of one set of problems inevitably leads to a new set of problems, often more complex and difficult to resolve than the former. A new access road into a community is an important and necessary step forward, but a host of new problems (of credit, marketing, adjudication, etc.) is certain to follow. Problem-reduction is a never ending process, as shown rather vividly in the recent history of the United States. And because insurgencies can exploit today's problems as easily as those of the past, a criterion based on the elimination of yesterday's problems cannot serve as a useful index of progress in building greater resistance.

2. The second approach has been based on the related construct of villager "satisfaction." Here, the assumption has been that susceptibility and resistance to subversion are closely tied to the people's "contentment with existing conditions." But, again, this cannot be. If the Thai population were truly contented with their present conditions of life, modernization would stop, and Thailand's development goals could not be achieved. Paradoxical though it may seem, the attitudes that the insurgents try to exploit to subvert the country and the attitudes that the government must encourage to strengthen it are largely the same. And as a community

begins to develop, dissatisfaction almost certainly increases. The "revolution of rising expectations" is very real.

If the people of a community do not mind economic hardships, do not aspire to improved social conditions, do not object to incompetent or dishonest officials, the community is not strong; it is in many ways as detrimental to Thailand as one that actively helps the insurgents. Contentment is not a useful concept for evaluation, and neither is any other static approach.

The key conceptual task, therefore, is to isolate the essential characteristic of a community that makes it resistant to subversion despite the changes, problems, and dissatisfactions that are inevitable in modernization. What characteristic enables a polity to adapt and grow stronger without violent social disorder?

The basic hypothesis that was developed as a proposed answer during the course of this research can be stated briefly as follows:

A community is resistant to subversion to the extent that its inhabitants are investing time, effort, and money in the lawful opportunities for economic, social, and political improvements that are available to them.

In locations where the people continue to invest in the available opportunities for improvement, there is a natural resistance to subversion, no matter how rapidly the community itself may be changing. Where the level of investment in the available opportunities is significantly below local capabilities and resources, the situation is one of revolutionary potential, whether or not the insurgents have arrived on the scene.

Certain aspects of this hypothesis should be specifically noted:

1. All of the available opportunities for improvement are included in this definition, whether they are provided by the government or private sources, or generated by the village itself. A privately operated vocational school in the amphoe town is an available opportunity, for example; and so is a tractor which is available for rent to farmers.
2. All types of investments are also included. Listening to a Farmer's Friend radio broadcast regularly to learn about better methods is an investment, taking a petition to the amphoe office is another, leaving the village to take employment elsewhere is a third. Any use that is made of the opportunities the society affords for gain or advancement is to be considered.
3. The hypothesis does not require that all communities be evaluated on the same set of opportunities or the same types of investments. Rather, the question is: How fully is this particular community taking advantage of the opportunities that are currently available to it, given its present status, needs, and resources? All types of communities, poor or rich, more or less highly developed, are to be assessed in terms of what each could be doing.
4. The hypothesis does not imply that investment behavior is "the answer" to the insurgency problem. For a village under complete political control of the insurgents, investment is probably not a measure of resistance.\* We have speculated

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\*Where an infection is already well-advanced, preventive medicine will seldom be a substitute for surgery. But preventive measures will certainly be required following successful surgery.

that such villages could be high on economic and social investments but would be low on political as we define it. But we have no relevant data. The hypothesis is intended to apply to all villages where there is, or may in the future be, a contest.

Field observations suggested that communities superficially similar in external characteristics vary widely in this type of response. Certain villages send more of their children to the fifth grade,\* generate more letters to the radio station, are more active in petitioning the amphoe, are more aggressive in seeking non-farm employment, etc. And this inter-village difference was hypothesized to be a key element in local resistance or susceptibility to subversion.

There were four major reasons for this belief, as follows:

1. The first was that no government has sufficient resources to carry the entire burden for development and modernization. Historically, a substantial investment on the part of the people has invariably been required for significant economic advances. And it is therefore in the locations that are investing most heavily that the rate of progress is most likely to keep pace with rising aspirations.
2. The second was based on the observation that investments often create dependencies. The villager who becomes a hog-producer becomes dependent on the Amphoe veterinarian; he will therefore be opposed to any activity which interferes with the official's access to the village. This is not a "commitment to the government"; it is simply a mutual dependency as

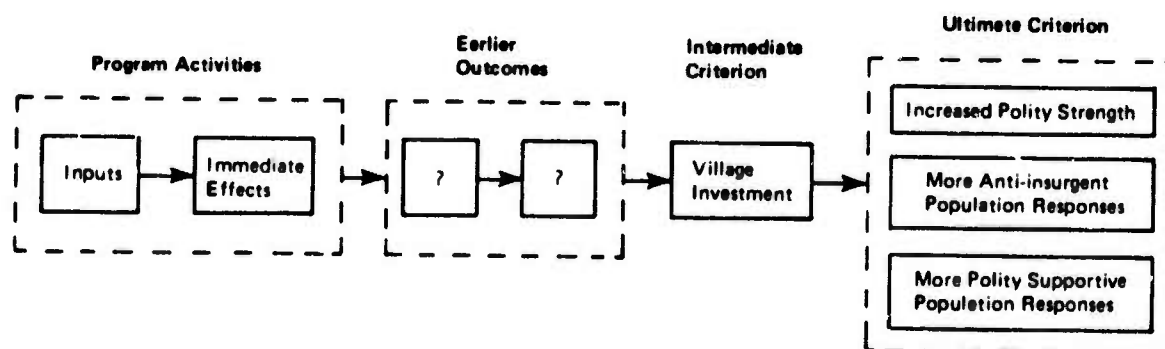
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\*The Standard Education for the rural Thai is four years.

a consequence of a particular development activity. A villager needs access to a market, he needs a teacher for the new school, he needs assistance from Amphoe officials. And the system which results is inertial; it becomes self-perpetuating.

3. The third was the psychologically-derived assumption that people who continue to invest in "legitimate" opportunities for change, do in fact develop a commitment to the existing polity, and become less likely to invest in the more risky opportunities offered by the insurgents. Any established behavioral pattern tends to be competitive with new and different approaches.
4. The fourth was the related assumption that the groups which are not investing in the opportunities available to them probably include large numbers of the more "disenchanted," who are prime recruitment targets for the insurgents. Individuals who have stopped trying to advance within the system should be especially vulnerable to revolutionary appeals.

On all four counts, the behavior of investing in available opportunities appeared to be a useful intermediate criterion, and the impact model was elaborated as follows:



Three major developmental steps are implicit in this formulation:

1. The first is to construct a trial index of village investment, and to evaluate both its technical suitability as a criterion measure and its practical feasibility as an operational data collection procedure.
2. The second is to validate this index against measures of the ultimate criterion, to demonstrate (and sharpen) its utility in forecasting the population responses actually desired.
3. The third is to determine the nature of the earlier outcomes that lead to greater village investment, so as to identify the types of action programs that are likely to prove most productive.

This report is concerned with the first of these efforts. Can a reliable index of village investment be constructed? Can the costs and logistic requirements of using this index be brought within the resources of the Thai agencies that manage anti-insurgency programs?



### III. DEVELOPMENT OF A TAMBOL-LEVEL MEASURE OF VILLAGE INVESTMENT\*

#### A. Initial Formulation.

Before one can construct an instrument, it 's necessary to know what kinds of investments Thai villagers can make in economic, political, or social advancement. The first task then, was to develop a comprehensive list of the investment opportunities which are available in most rural locations.

From a review of the descriptive literature on rural Thailand and from interviews with knowledgeable persons, some 250 specific examples of villager investment were collected. The range of investment behavior was considerable, as reflected in the following examples:

- One farmer ventured to put some of his earnings into the bank, having been encouraged to do so by a Chinese middleman. His experience paved the way for others.
- Many villagers spent most of their free time in the dry season weaving bamboo walls, which were sold to Chinese merchants.
- In the hope that the (very large) village might someday be the center of a King Amphoe, villagers donated land for the future Amphoe offices.
- Mr. X bought a Singer sewing machine and sent his wife to the 3 months course; when she returned he put her to work making blouses and shirts.

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\*Much of the data reported in this chapter was previously reported in Research on Impact Assessment with the Community Development Department: A Status Report on Methodology. American Institutes for Research, Bangkok, May 1970.

Tobacco is raised by the students under the guidance of the school teacher on the land where the new school is to be built. Money from the crop goes into the school fund.

In the course of our work with the Community Development Department, we had become impressed with the potential of the CD Worker as a source of village-descriptive data. Individually, the CD Worker is likely to possess a great deal of knowledge about the villages of his tambol; collectively, the 1300 tambol-level workers are responsible for over 16,000 villages. Since a measure of village investment has obvious relevance to the Community Development Department, it was decided to focus our first effort at index construction on the tambol-level CD Worker.

The pool of items was sorted into three categories of:

- I. Investments in Economic Improvement, such as: growing cash crop, opening shop, renting land, etc.
- II. Investments in Political Improvement, such as: petitioning Amphoe for services, writing letter to MP, participating in village development activities, etc.
- III. Investments in Social Improvements, such as: adopting health practices, supporting school fund, putting new roof on house, etc.

A CD Worker Report Form was then constructed. It consisted of 31 specific items, and yielded separate sub-scores on the above three categories of investments.

Though it was thought that having three separate scores would be useful, it was also hoped that these three scores would be sufficiently intercorrelated to support the contention that a general village characteristic of the type hypothesized indeed exists. Evidence of such correlation would constitute the first step in the demonstration

that this characteristic might be a key factor in resistance to subversion.\* Positive intercorrelations would also permit the combination of the three sub-scores into a composite measure of village investment.

B. First Tryout.

The first tryout of the form was conducted at the CD Training Center at Laem Cha Bang on 16 April 1970 with a group of 54 CD Workers attending a re-training program. All were 4th grade\*\* officials who had been in the field for two to three years; all were stationed in Changwads Nakhon Phanom, Roi-Et, or Sakhon Nakhon.

The form was well received, and was completed in less than 30 minutes by most respondents. Each was asked to name the changwad, amphoe and tambol to which he was assigned and then to list all of the villages in his tambol. He was then requested to rank the three most developed villages, the three least developed villages, and to list the two that were most nearly in the middle.\*\*\* Having done this, he was next to look at the first page of his form, where a number had been printed in large type. This number corresponded to one of the eight ranked villages (three high, three low, two medium), and he was instructed to consider that village only in all subsequent questions. Thus, each Worker reported on the 31 items for a single village, selected more or less at random by the above procedure.

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\*The existence of a general village characteristic that cuts across economic, political and social investments is a necessary, but not sufficient condition for this demonstration. As noted, it is only the first step toward validation of the idea.

\*\* This is the lowest grade in the Thai Civil Service.

\*\*\*The definition of "most developed" included such things as the eagerness of villagers to improve their lot, the general condition of village life, wealth of the village, etc.

Results. Of the 31 potentially scorable responses, five were eliminated because the percentage of "don't know" responses was high, showing that the CD Workers did not have this type of information. Six other items were deleted because the quality of the responses was doubtful, leaving twenty items, as follows:

Area I. Indicators of economic investments

- 1) Adequacy of rice yield
- \* 2) Land Rental
- \* 3) Use of fertilizer
- \* 4) Use of insecticides
- \* 5) Use of improved seed
- 6) Number of buses and trucks
- 7) Number of rice mills
- \* 8) Number of shops
- \* 9) Number of sewing machines
- \*10) Villagers taking seasonal employment outside village

Area II. Indicators of political investments

- \* 1) Number of real leaders in village
- 2) Proportion of leaders holding official positions
- 3) Proportion of leaders who are merchants
- 4) Frequency of visits by officials
- 5) Number of village organizations
- \* 6) Number of members in organizations

Area III. Indicators of social development

- 1) Number of monks and novices
- 2) Is temple locally famous?
- 3) General condition of houses
- \* 4) Number of villagers being educated beyond Prathom 4

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\*Expressed as a percentage of households.

The scoring system for this first tryout was essentially arbitrary. Over half the items were scored on 5-point scales; three items were natural dichotomies and were scored as such; the weighting was thus proportional to the natural variance of the items. While other scoring systems were possible, it seemed sensible, given the small sample, to use relatively simple and natural weighting and to depend on cross-validation as an initial test of the adequacy of the scoring procedure.

Sub-scores for the three areas of investment were computed and transformed to approximate "stanine" scores.\* Table 3.1 shows the distribution of these scores for villages ranked High, Medium, and Low by the CD Workers. It will be

Table 3.1. Stanine Distributions for Three Sets of Villages  
in Three Areas of Development

Stanine	<u>Economic</u>			<u>Political</u>			<u>Social</u>		
	High	Medium	Low	High	Medium	Low	High	Medium	Low
9	2			2			1		
8	2	1	1	6			3	1	
7	3	1	1	2	2		6	1	1
6	1	2	2	3	4	2	3	2	2
5	9	3	1	5	3	2	4	6	3
4	1	5	3	1	2	4	1	3	2
3	1	2	3		2	5	1	1	3
2			4		1	1			3
1			1			2			2
Mean	5.9	4.9	3.9	6.7	4.9	3.6	6.3	5.1	3.7

\*A stanine is a normalized score which assigns 4% of the sample to the top (stanine 9) and 4% to the bottom (stanine 1), 7% to stanines 8 and 2, 12% to stanines 7 and 3, 17% to stanines 6 and 4 and 20% to the middle stanine (5).

seen that there is considerable variation in this sample of 49 villages,\* and that the difference between High and Low Villages is large, between one and one-and-a-half standard deviations.

If these three categories of investment are, in fact, tapping the same underlying construct, then the correlations between them should be positive, as noted earlier. Correlations were computed for the 49 villages displayed in the above table, with results as shown in Table 3.2.

Table 3.2. Product-Moment Correlations Between Three Areas of Investment, N=49		
	Political	Social
Economic	.57	.62
Political		.57

The correlations are high enough to support the hypothesis that "investment behavior" is a characteristic of the village rather than the result of ad hoc opportunities for economic, social, or political gains, and make it reasonable to use a composite score of investments to represent this characteristic. Accordingly, the sum of the three category scores for each village was computed, with each weighted equally, to produce a composite. The distribution of these composite stanines is shown in Table 3.3. And, again, the level of discrimination is high.

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\*Five Report Forms were not used in the analysis either because the respondent did not answer enough items to provide stable scores, or because number of households was omitted.

Table 3.3. Composite Stanines for  
Three Sets of Villages

Stanine	High Villages	Average Villages	Low Villages
9	1		
8	3		
7	5	1	
6	3	3	2
5	7	4	5
4		5	
3		1	6
2			2
1			1
Mean	6.4	4.9	3.8

Over-all, the results of the first tryout were most encouraging; further work with the Report Form was clearly warranted.

C. Cross-Validation.

Based on an analysis of individual items, a few modifications of the Report Form were made: some low-response items were dropped, and the wording was altered in some items and in the instructions. The modified form was given to a new sample of 80 CD Workers attending the refresher course at Laem Cha Bang in late April. This sample, again consisting of fourth-grade officials, represented Changwads Udon, Khon Kaen, Loei, Nong Khai, and Maha Sarakham (with six additional provinces represented by a total of seven officials). The new sample was scored on only those items which had been scored on the previous form, using the same scoring procedure and the

same stanine conversion tables.\* The distributions resulting from this procedure are shown in Tables 3.4 and 3.5.

Table 3.4. Stanine Distributions for Three Sets of Villages on Three Areas of Development: Cross-Validation Sample

Stanine	<u>Economic</u>			<u>Political</u>			<u>Social</u>		
	High	Medium	Low	High	Medium	Low	High	Medium	Low
9	2			6	1		4		
8	8			2	1		10	1	
7	3	2		3			9	5	
6	9	3		8	5	2		3	
5	4	5	1	11	5	3	4	2	1
4	6	5	4	2	3	1	4	3	1
3			9			4			2
2			6			13	1	1	12
1			4			1			8
Mean	6.3	5.1	2.7	6.3	5.6	2.9	6.8	5.6	2.0

Table 3.5. Composite Stanines for Three Sets of Villages: Cross-Validation Sample

Stanine	High Villages	Average Villages	Low Villages
9	3		
8	7		
7	5	2	
6	9	3	
5	5	7	1
4	3	3	3
3			11
2			7
1			2
Mean	6.5	5.3	2.8

\*Nine Forms were deleted because the number of items completed was deemed insufficient, or because number of households was omitted.



Several conclusions are apparent from these two tables. First, for both the three components and the composite, the discrimination among villages judged as high, average, or low, is sharper than in the initial sample. Second, with the exception of two "average" villages in the Political area, and one in the Social area, the overlap between the three sets of villages is considerably less than usually obtained with procedures of this kind. And third, the fact that such discrimination can be obtained with scales of 10, 6, and 4 items is extremely encouraging.

The finding from the first tryout that the three kinds of investment go together was also confirmed in the second sample, as shown by the coefficients in Table 3.6.

Table 3.6. Product-Moment Correlations Between  
Three Areas of Development: Cross-Validation Sample

	Political	Social
Economic	.67	.75
Political		.70

The correlations between Index scores and the over-all village rating are shown for both samples in Table 3.7. The discriminative capability shown in this table is extremely high for data of these kind and

Table 3.7. Point Tri-Serial Correlations  
Between Index Scores and Village Ratings

<u>Index</u>	<u>Sample</u>	
	<u>Original</u> N=49	<u>Cross-Validation</u> N=71
Economic	.48	.62
Political	.66	.68
Social	.58	.78
Composite	.65	.80

is a strong argument for the utility of the construct as a basic village characteristic. The split-half reliability coefficient for the 20-item composite is .89, which is more than adequate.

At this stage in the development, we had demonstrated that

- a short set of objective indicators produced a reliable score,
- this score was correlated with the over-all judgment of village level of development made by a CD Worker, and
- the three categories of investment were sufficiently correlated to permit the use of a general construct of village investment.

In addition, the results suggested that with but minor modification, the CD Worker Report Form could be ready for operational use. The obvious changes were the following:

1. Items I.1, II.4, and III.2 should be replaced, since each is, at best, only an indirect indicator of a village investment.
2. Additional indicators should be added to the Political and Social areas to provide sub-scales of somewhat greater length.

Modifications of the suggested types were made in conjunction with the Amphoe and village-level work reported in the following chapter. Use of the twice modified form is reported in Chapter V.

#### IV. DEVELOPMENT AND PRE-TEST OF AMPHOE AND VILLAGE-LEVEL MEASURES OF INVESTMENT

##### A. Background.

In the preceding chapter, it was shown that a reliable and apparently useful measure of village investment could be obtained at low cost by using the tambol-level CD Worker as a source of village-descriptive data. But three questions arise. First, what is the veridicality of the data reported by the CD Worker: do his descriptions agree with those collected at first hand by a research team which visits the village? Second, what is the relationship between a village index based on only those questions which can reasonably be asked of a CD Worker and a more complete index based on all available data sources? And finally, what sources should be used for tambol which do not have resident CD Workers?

There are, then, practical reasons for developing measures of village investment which are not dependent on the availability of a CD Worker. And since the evaluation of alternate data sources is central to the AIR project, work was begun on the development of procedures for measuring village investment at both village and amphoe levels.

Several previously reported findings were of direct relevance to the development of these measures.\*

1. Village observation. A brief observational checklist had earlier been used to derive a score on "conditions of village

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\*Research on Impact Assessment with the Community Development Department: A Status Report on Methodology. American Institutes for Research, Bangkok, May 1970.

life." Scores were reliable, both in internal consistency\* (agreement among items) and reproducibility\*\* (agreement among observers). This was true even under conditions which were less than optimal for the observers (observations were casual and interspersed with other data collection procedures).

Since the AIR project has a marked preference for the less obtrusive measurement approaches, and since the Index features descriptive (as opposed to judgmental) items, the development of an analogous observation form to assess village assessment was one indicated procedure.

2. Village interviews. Also in this earlier study, village leaders (phuyalbar, Development Committee members, abbot, teacher) had been interviewed to obtain factual information about the village, and evaluations of changes which had occurred over time. The descriptive information was scored objectively, and yielded highly reliable measures. But the leader's evaluations of change provided no useful information. It was suggested that narrowly focussed interview questions, directed to specific instances or concomitants of change, might be more effective; and the development of a village-level measure of investment was a natural opportunity for trying this suggestion.

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\*Internal consistency refers to how well the separate items selected to represent one construct "hang together." If the internal consistency of "Political Investment" is high, then the items chosen to represent it probably tap the same construct.

\*\*Reproducibility refers to the degree to which a score would be "reproduced" by a second attempt--or in this case, by a second observer--trying to measure the same thing by the same procedure.

3. Amphoe information. Three separate attempts had been made to obtain village-specific data from Amphoe files. The first was based on the inspection of records selected as relevant by the researchers because they "should" (in accordance with their titles) have contained the desired information. But, in fact, they did not; and this approach was aborted as unproductive. The next two efforts focused, not on specific records, but on the keepers of Amphoe records -- asking these individuals for the requisite information, and leaving to them the question of relevant sources. The data obtained through this approach were consistent with results obtained by the more costly procedure of research in the village itself. These promising results justified a more thorough and systematic effort to utilize Amphoe data sources, and this approach was also incorporated in the plan for measuring village investment.

B. Development of Instruments and Procedures.

1. Completion of measurement rationales. The development of rationales for the three areas of village investment had been started but was not complete at the time the CD Worker Report Form was being constructed. To facilitate item selection for the Report Form, rationale development was re-directed to concentrate on indicators which might be used with CD Workers and to ignore, temporarily, indicators which seemed likely to depend on other sources for their measurement. In order to develop instruments for use at the Amphoe and village levels, the existing "mini-rationales" were expanded to include all data sources. For each area of investment, the rationale specified (a) the hypotheses which underlay each sub-category of investment behavior, (b) the specific indicators which

could be used to represent the category and (c) the sources to be considered for each indicator. The rationales were intentionally redundant for both indicators and sources, the final selection in both cases to be based on the empirical evidence regarding cost, ease of routine collection and validity.

2. Development of Amphoe procedures. A principal goal of Amphoe-level work was to develop a more thorough understanding of political investments. The Amphoe offices and officials are the probable foci for most village attempts at using the political process. Requests for any kind of service or assistance, complaints and grievances, and the giving of or asking for information are likely to involve the Amphoe in the first instance. The Amphoe should thus be the best possible source of information about the extent to which a given village makes use of the opportunities for political action which are available to it.\*

In addition to the development of specific guides for interviewing each Amphoe official, a nomination procedure was devised for use in all interviews. The opening question would concern the kinds of things about which villagers come to see this particular official. Interviewers were to probe to get the full range of requests, complaints, grievances, etc. They were then to ask, "Which villages have contacted you about such things during the past six months?" Again,

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\*Here as elsewhere, we intend the broadest possible construction of "political"; going to the Nai Amphoe to complain about police behavior is a political investment.

probing was recommended. For each village nominated, the subject and disposition of the contact was to be established.

Following the nomination procedure, each official was asked about requests or visits from any villages of special interest to the research study.\* The interview then proceeded to the specific questions which were on the interview schedule for the particular official being interviewed.

3. Development of village procedures. One instrument scheduled for village use was the CD Worker Report Form; a field researcher would ask the phuyaiban each question orally, and complete the Report Form as a part of an interview. Interview guides were also developed for the school teacher, the abbot and for a member of the Village Development Committee. Special attention was given to the social investment area (since this should be most easily measured at the village level), and to the area of political development because we knew least about its manifestations in the village.

Finally, an observation checklist was developed for village use. As might be supposed, it appeared to be strongest on economic investments, next best in the area of social investments, and was essentially devoid of observable manifestations of political investment.

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\*Which would obviously vary with the particular study; the point here is that a general, open-ended nomination item would always precede a request for information about a specific village.

C. The Mukdahan Tryout.

1. Objectives. A joint CD/AIR field team visited Amphoe Mukdahan, Changwad Nakhon Phanom, from 31 May to 4 June 1970. The visit, arranged by the Community Development Department, had the following objectives:
  - a. to verify village-descriptive information collected from six CD Workers who had completed the Report Form at Laem Cha Bang.
  - b. to determine the nature and extent of village-specific information obtainable at the Amphoe level,
  - c. to obtain sufficient information on all forms and procedures to permit revision prior to their full-scale use.
2. Procedures. Interview procedures were as indicated in the preceding section. Village visits were made in company with the CD Worker, who did not, however, remain present during interviews. Observations were concentrated at the outset of the village visit; a complete tour was made upon arrival.
3. Results.
  - a. The accuracy of the CD Worker Report. There were six villages in Mukdahan for which Report Forms had been completed at Laem Cha Bang. Since we could not visit one of these villages, for reasons of security, a substitute village was selected and the CD Worker completed a Report Form for that village at the Amphoe office. A field team then visited each village spending an average of 8 man-hours per village. Through interviews and observation, a Report Form was completed



for each village by the field team. Agreement between the two reports is shown below. It is unfortunate that only one village in the sample had an

Table 4.1. Comparison of CD Worker and Field Team Scores for Six Villages

Village	CD Worker Stanine	Field Team Stanine
Kud Ngong Noi	5	5
Na Kam Noi	4	5
Dong Yen	5	5
Pueng Daed	6	5
Kaeng	2	3
Pran On	5	4

extreme score (Kaeng), but even so, the results suggest that scores obtained from CD Worker Report Forms can be trusted. Since the items are essentially descriptive, this is not surprising, but the practical value is nonetheless very great.

b. Village-specific information known to Amphoe officials.

The general conclusion was that Amphoe officials collectively possess a great deal of information about their villages. In response to the question, "Which villages have made requests of you during the past six months?", a total of 60 villages was named; this is 37% of all villages in the Amphoe. Seventeen villages were named by two or more officials; the number of nominations is shown in Table 4.2.

Table 4.2. Villages Nominated by  
Twelve Amphoe Officials

Number of villages receiving:	Number of Villages
Six nominations	2
Five nominations	1
Four nominations	3
Three nominations	3
Two nominations	8
One nomination	43

It would seem reasonable to suppose that a village receiving five or six nominations is very different from one receiving none at all. In each case, the nature of the request and the disposition were given; the five villages which had requested a school were specified, as were the eleven villages which had requested assistance with road construction.

At a more detailed level, the knowledge possessed at the Amphoe was impressive. For each of our six villages of special interest, we obtained reports on the strength or weakness of the phuyaiban and development committee, the degree to which disputes were settled within the village, the extent to which the village cooperated with development programs and other related issues. While some officials naturally knew more about a particular village than did others, there was no basis for doubting the accuracy of the information given. As in the CD Worker Report Form, the procedures used at Amphoe made "don't know" responses perfectly acceptable; there was no forcing

of a response. In Mukdahan, when an official did not know much about a given village he did not hesitate to admit it and often suggested another official (or one of his assistants) who knew the village well. The second relevant fact is that when several officials gave information on the same village, the reports were consistent. And finally, the Amphoe reports on our six villages were in factual agreement with the reports generated by the field teams from the village visits.

c. Amphoe records. No extensive survey of records was made. Two kinds of data which had been obtained in earlier work in Prachuab Khirikan were collected in Mukdahan:

1) Police records. All crime data for our six villages were copied from the Amphoe log. This required slightly over one hour of a sergeant's time.

2) School records. Village-of-origin is recorded for each student at the time of entrance. Consequently to obtain the number of students from Ban X who are currently enrolled in the secondary school, records for the past three years would have to be reviewed. The school principal took a shorter route. He sent an assistant to each classroom and got a show of hands for each of our six villages.

4. Summary. The Mukdahan results were encouraging. They constituted a convincing demonstration of the richness of the Amphoe as a source of village-specific data.\* It also appeared that we could get reliable village-level data at a cost of no more than one man-day per village. And finally, while modifications were indicated to instruments and procedures, the development seemed to have been on the right track; by carrying out the necessary revisions, we would be ready for a full-scale tryout.

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\*While in Mukdahan, the field team became convinced that the Amphoe was well above average in this respect. We believed, however, that we could come several notches down and still obtain adequate data. Subsequent experience has supported both convictions.

## V. A STUDY OF FIFTY VILLAGES

### A. General Design Considerations

The study to be described was conceived as a final development step in establishing an Index of Village Investment. The product was to be a set of instruments and procedures ready for validation. Nothing is ever final, of course. It is assumed that should the Index be installed for operational use, modifications and refinements would continue to be made; but such improvements are viewed as polishing operations. The developmental task, per se, was to be completed so that attention could be directed toward the primary goal of relating a village's investment behavior to its resistance to subversion.

In designing the study to meet this objective, the following factors received attention:

1. Sample size. There were two issues to consider. From considerations of sampling error, we wanted as many villages as constraints of time and personnel would permit; thirty was chosen as a minimum acceptable number and fifty was taken as a desirable target. At the same time, it seemed essential to sample Amphoe as well as villages. The Mikhahan experience convinced us that one could get excellent results in an Amphoe which was fully staffed with competent, hard-working officials. But not every Amphoe can be so fortunate and it seemed most important that some assessment be made of the variability likely to be encountered. Unfortunately, research costs (in time and personnel) per village increase as the number of Amphoe increases. At the Amphoe level, collecting data on ten villages costs little more than collecting data on but two; the number of interviews is a constant, and the time

per interview would increase by perhaps 10 to 15%. Similarly, travel time to villages is increased with an increase in the number of Amphoe. So, a large number of Amphoe was simply not feasible.

Our decision was to select 12 to 14 villages in each of four Amphoe, assuring an adequate number of villages and at least some experience with the variance among Amphoe. In order to complete the field work within agreed-upon time limits, it was decided to restrict village visits to approximately one-half of the sample.

2. Geography. Thailand is usually viewed as consisting of four or five regions (depending on whether the mid-South is considered to be a region or an extension of the Central plains). It might, therefore, seem reasonable to choose one Amphoe from each region. Instead, our preference was to concentrate on the Northeast. We viewed this as a conservative choice. It would seem more in the interest of an RTG agency to have an Index that was demonstrated to work in one region rather than to have one which might or might not fit any region. Our choice was to complete the developmental work in the Northeast and to propose validation in the North and Northeast.
3. Insurgent history. Since an adequate validation study promised to be a major undertaking, it was desirable to have a sample for the development study which might serve at some later time for a preliminary validation to be based entirely on existing records of insurgent and responsive activities. It was therefore deemed advisable to select villages from areas which were or are considered to be sensitive to constitute a sample with a differential history of contact with the

insurgents. This decision affected the choice of both Amphoe and villages-within-Amphoe.

4. Investment opportunities. Villages differ radically in the opportunities which are readily available to them for investing in economic, social, or political progress. A careful measurement of these opportunities would go far beyond the resources available to us; yet, some control was clearly necessary. We decided to:
  - a. select clusters of three or four villages within a tam-bol, so that within-cluster access to roads, markets, Amphoe town would be roughly equal, and
  - b. avoid the most remote villages where our Index might measure opportunity rather than investment.

In our earlier work we had frequently found villages which were in close proximity to one another and which had received equivalent attention from government programs, but which differed significantly in the extent to which they were acting on the opportunities. We assumed that differences of this kind would again be evident. Their existence is strong support for the contention that the Index taps a significant village characteristic.

The above issues affected the selection of the sample; the four which follow concern desirable characteristics of the data and/or data analysis.

5. Scores and judgments. The primary objective of the study was to obtain scores, based on comparable sets of indicators,

from Amphoe, tambol, and village.\* In addition, it seemed desirable to split the village-level score into two components, one based on the responses of the phuyaiban to the CD Worker Report Form and a second based on observations and interviews that could only be obtained at the village (phuyaiban could be interviewed at the Amphoe, without a village visit). While the scores would carry the principal burden, it was deemed advisable to obtain also an evaluative judgment at each level. The techniques used should provide a clearly-defined and well-structured task to the respondent, but should at the same time permit him to use any knowledge which he might have in making his judgment. Where possible the judgments should be obtained prior to the collection of the more detailed data.

6. Compatibility with previous work. In order to have a basis for comparing the villages in our sample to the earlier samples, all items appearing on the previous versions of the CD Worker Report Form were to be included in the present version, even if they did not appear in the current score.\*\* Villages could

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\*The word "comparable" is sufficiently important to warrant elaboration. If our interest were purely methodological, identical sets would have some merit. The identical set would represent a "least common denominator"; i.e., it would consist of those indicators which could be collected at all levels. Since our objective is substantive as well as methodological, the goal is to obtain the best measure possible at each level and this leads to the selection of some indicators which are unique to a level. Table A-5 in the Appendix shows the comparability which was achieved between the four sets of indicators used.

\*\*One item was inadvertently omitted but the scores are still compatible.



then be scored by the same protocol that had been used for the 120 villages\* obtained at Laem Cha Bang, thus providing a partial context for the present sample.

7. Cost estimates. It was decided to keep records of time spent on the various procedures and to make estimates of the effects of increased sample size on time required. This was to permit some crude analyses of cost and benefits for the several approaches.
8. Item weighting. Prior studies had used what might be called "natural" weights since they were determined by the natural variance of each item. Since these variances can be determined by the fortuitous selection of item format (a Likert scale versus Yes-No, for example) it is difficult to build a logical defense for what is essentially an arbitrary system. Empirically, the scoring system seemed to work quite well, but there was, of course, no demonstration that other schemes would not work better. It was therefore decided to study alternative weighting systems as a feature of the over-all design.

B. Procedures.

1. Sample. The location and size of each village studied is shown in Table 5.1. The 27 villages visited by a research team are denoted by an X in the right-hand column of the table.

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\*49 villages from Tryout I plus 71 villages from the cross-validation sample.

Table 5.1. Villages in Fifty Village Study

Changwad Nakhon Phanom

Amphoe Na Kae

Tambol	Village	No. of Households	Visited
Dong Luang	Dong Luang	204	X
	Pone Daeng	150	X
	Piat	100	
	Sok	104	
Nong Bua	Nong Yang	127	
	Nong Nao	95	X
	Nong Bua	130	X
	Bo	137	
Na Khu	Na Khu	212	X
	Nam Bo	107	
	Kham Om	93	X
	Khaen Nang	71	X

Changwad Kalasin

Amphoe Kuchinarai (King Amphoe Kao Wong)

Tambol

Na Khu	Na Khu Mu 1	245	X
	Kut Ta Klai	84	X
	Wang Wieng	78	X
	Na Kadao	130	X
Phu Laen Chang	Phu Laen Chang	203	X
	Non Sala	118	X
	Chan	108	X
	Nong Hang	50	
Nong Phu	Khok Kong-Non Soong	60	X
	Nong Phu Mu 1	110	
	Kut Kok	80	
	Som Poi	185	
	Kok Mali	115	
	Pone Pisai	142	

Changwad Sakon Nakhon

Amphoe Sawang Daen Din

Tambol

Song Dao	Bo Kae Noi	27	X
	Bo Kae Yai	36	X
	Nong Muang	53	

Table 5.1. Villages in Fifty Village Study (cont.)

Changwad Sakhon Nakhon

Amphoe Sawang Daen Din (continued)

Tambol	Village	No. of Households	Visited
Khok Sri	Khok Lao	139	
	Bung No	150	X
	Thung	48	X
Tan Neong	Nong Saen Paen	40	X
	Tan Kon	230	X
	Nong Lak Chang	97	
Thung Kae	Thung Kam	33	
	Nong Haeng Lao	38	
	Kae Dam	60	

Amphoe Wanoniwat

Tambol

Khu Sa Kham	Khok Kong	60	X
	Hua Na	45	X
	Hat Sai Mun	54	X
Khan Ta Kla	Kut Chan	187	
	Na Thon	50	
	Dong Bang	106	
That	Nong Hang	192	
	Tan Dieo	88	
	Non Tae	80	X
Dua Si Kanchai	Khok Sa-at	82	
	Si Wichai	158	X
	Don Daeng	119	X

2. Arrangements. The Community Development Department sent letters to the three Governors, introducing AIR, indicating the nature and length of the upcoming visit and noting that the research team would be interviewing Amphoe officials of all levels and that visits would be made to some villages. The Amphoe were requested to arrange for phuyaiban interviews at the Amphoe, on specified dates.

3. Personnel. All data were collected by Thai staff members of AIR; two U.S. staff members accompanied the Amphoe teams but participated only as observers and advisers.
4. Schedule. All Amphoe and tambol-level data were collected and all phuyaiban were interviewed in the period 10 to 15 August. Village visits were conducted in the period 16 to 31 August. A total of 56 man-days was expended in data collection, including travel within the study area.
5. Measures. Five independent measures of investment behavior were obtained for all villages studied; two additional measures were obtained for the 27 villages visited by a research team. Each measure consisted of separate scores for Political, Economic, and Social investments and a Composite score in which the three components were equally weighted.\* The measures are as follows:
  - a. Amphoe Ranking (AR). This score was derived from a combined nomination and ranking technique. The procedure was applied in each interview with an Amphoe official. In each interview, the first task was to find out how much, in general, the Amphoe official being interviewed knew about the villages of the Amphoe. Reasonable questions included (but were not limited to) such things as:
    - 1) "How long have you been assigned to this Amphoe?" and
    - 2) "Does your work keep you tied to your desk, or do you get out to the rural areas frequently? Have you visited most villages in the Amphoe?"

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\*The results presented in Chapter III suggest that differential weighting of components would give less stable composites than would equal weights.

The interviewer then decided whether the interviewee could be asked all three, only two, or only one of three "nomination questions" which correspond to the categories of political, economic, and social investment.

It was assumed that almost all interviewees could respond to:

- 1) "Of all the villages in the Amphoe, which three make most use of Amphoe services and officials? Which three make least use?" (Political)

After these nominations were completed and recorded, the task was to place the villages in our sample somewhere on the same scale. The interviewee was given a set of 2" x 3" cards, each of which had a village name printed on it. The official was then asked to name those villages of the set which he knew reasonably well. The following questions were asked only if he claimed to know more than half.

First, "Which of these villages (the ones that the respondent knows something about) is most like the top three you listed?"

Then, "Is it very much like those three or pretty far below them? (About how many villages in the Amphoe would rank higher than this village?)"

Then, "Which is next?...and next?" and so on to the last one. For the lowest ranking one, the interviewer asks:

"Is it about the same as the bottom three villages you named? About how many villages in this Amphoe would rank lower than this (the last ranked) village?"

Each village of the set is thus assigned a rank within the set, and for the first and last ranks, there is an estimate of the distance to the top or bottom three villages in the Amphoe.

The interviewer then proceeded with the second "nomination question":

- 2) "Of all villages in the Amphoe, which three have made best use of the opportunities for economic development which are available to them? Which three are least progressive in economic development?" (Economic)

He then applied the same ranking procedure as used with the first question.

Those officials who had spent considerable time in villages were given the third nomination item:

- 3) "If a friend of yours were going to retire and live in a village of this Amphoe and wanted a pleasant place where people were cooperative and friendly, which three villages would you recommend to him? (Disregard such things as nearness to larger towns; think only of how pleasant it would be to live in the village.) In which three would you not want him to live because the villages are not at all desirable places?" (Social)

Again, the same ranking procedure was applied.

Scores were obtained from these data by the following steps:

- 1) For each interviewee, convert highest and lowest ranked villages to percentile scores by dividing the "number better than" or "number worse than" by the total number of villages in the Amphoe.
- 2) Convert percentiles to normal curve deviates.
- 3) Compute standard score distance (absolute value) between highest and lowest ranked village.
- 4) (Assume distance between adjacent ranks is constant) divide total distance by  $N-1$  and assign scale values to each village.
- 5) Sum scale values for each village across all interviewees; divide to obtain average standard score.

6) Convert directly to stanine scale.

This procedure assumes that Amphoe are equal while samples of villages need not be. For the four Amphoe in this study, the assumption is plausible; but even in cases where it is obviously false, the error introduced may be of tolerable magnitude. In any event the adequacy of the assumption is testable in the present case since other measures made no such assumption.\*

- b. Amphoe Scores (AS). After the nomination-ranking procedure was completed, the Amphoe interviews varied according to the official being interviewed; some questions were asked of most officials, some were asked of only one or two. From the interviews, scores on 32 indicators were obtained (15 Political, 8 Economic, and 9 Social); where more than one official reported on an item, the score was the average of all responses. The list of indicators and the officials responding to each is shown in Table A-1 of the Appendix. Total scores for each component were transformed to approximate stanines; the composite stanine was obtained using a standard conversion table.
- c. Tambol Ranks (TR). Each CD Worker and each kamnan was asked to rank all of the villages in his tambol on each of the three areas, using the same questions which were used to obtain rankings from Amphoe officials, but with tambol rather than Amphoe as the frame of reference. The CD Worker completed the ranking form on his own, reading printed instructions. He did this prior to completing the CD Worker Report Form. The same ranking form was used with the kamnan, but in this case, an interviewer read the instructions and recorded the responses.

Scores were obtained by the following procedure.

- 1) Ranks were converted to percentages by dividing the rank by the number of villages in the

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\*Amphoe Scores, for example, are free of any such assumption; if the AR-AS correlation within an Amphoe is no higher than the same correlation for all Amphoe combined, then the assumption is permissible.

tambol.

- 2) An average was obtained by adding kamnan and CD Worker responses.
- 3) The averages were ordered and converted to approximate stanines.

This procedure makes the even more restrictive assumption that tambol are equal. The assumption is almost certainly untrue; the issue is whether the error which is thereby introduced is of a magnitude that can be tolerated.

- d. Tambol Scores (TS). This score was taken from the CD Worker's responses on the CD Worker Report Form. The 29 scored items (8 Political, 13 Economic, and 8 Social) are shown in Table A-2 of the Appendix. Scores were converted to stanines by the usual procedure.
- e. Village Ranks (VR). This measure was obtained only for the 27 villages which were visited by the two-man research team. Judgments were made using the following procedure.
  - 1) The frame of reference was "all of the villages you have ever seen" (both team members had been involved in village-level work for over two years).
  - 2) The scale was the stanine: 4% of the population (not the sample) belonging in stanines 1 and 9, 7% in 2 and 8, 12% in 3 and 7, 17% in 4 and 6, and the middle 20% being assigned to stanine 5.
  - 3) The assignment was to make absolute, rather than relative judgments. If none of the villages visited were judged to fall in the top 4% of all villages known, then no village was to be scored as a 9.
  - 4) The judgments were made by sorting cards, with one village name on each, into one of nine piles. Each team member completed the task independently.



- 5) Three judgments were made in response to questions representing Political, Social, and Economic investments. For E and S, the questions used at Amphoe and Tambol were also used here, but for P, modification was necessary since use of Amphoe resources was not investigated at the village. The question actually used referred to the adequacy of the internal organization of the village.
  - 6) The average of the two judges' scores was taken as the stanine. All averages ending in .5 were rounded to the next whole number nearer to 5 (the average).
- f. Village Scores (VS). This score was taken from the phuyaiban's responses to the CD Worker Report Form. The 33 scored indicators (9 Political, 15 Economic, and 9 Social) are shown in Table A-3 of the Appendix. Stanines were obtained by the usual procedure.
  - g. Team Visit Scores (TVS). This score was obtained from the 33 indicators (6 Political, 6 Economic, 21 Social) obtained by the two-man team during their village visit. The indicators are shown in Table A-4 of the Appendix.

Village visits averaged 3 hours in length. Upon arrival, team members toured the village and upon completion of the tour, recorded responses on an observational checklist, from which 15 of the 33 indicators were taken. Observations were recorded independently; the score was the average of the two. Each team member then conducted interviews individually with one or more school teachers, the abbot or a senior priest (if there was a temple) and one or more shopkeepers. The remaining 18 indicators were obtained from the interview forms.

Scores were transformed to stanines by the usual procedure.

6. Treatment of the data. Descriptions of specific analyses will be made as appropriate in the Results section which follows.

Some general procedures were:

- a. All scores (AS, TS, VS and TVS) were computed in three ways. Model I used the "natural" weights which were used in the earlier work. Model II used equal unit weights (each item assigned a score range of 0 to 1.0 with a mean approximating .50). Model III assigned integral weights of 1 or 2 to each item score in Model II, the double weights going to items which were central to the measurement rationales and which had shown high discrimination in the earlier work. This third model will be termed "rational" weighting.
- b. All component scores for all weighting models were split into random halves for purpose of reliability estimation. Composite reliability estimates were also computed by the split-half method: Set 1 ( $P_1 + E_1 + S_1$ ) versus Set 2 ( $P_2 + E_2 + S_2$ ).
- c. Reliabilities for Amphoe Ranks and Village Ranks (AR and VR) were estimated from agreement among raters; Amphoe officials were split into random halves and the correlation between sets of officials then computed. For VR, there are but two raters, so the correlation is the inter-rater agreement for  $n = 2$ .
- d. No reliability estimate could be computed for Tambol Ranks (TR) because we did not obtain rankings from a large enough number of kamnan. Some kamnan were not interviewed at all and some who were interviewed did not complete the rankings.

### C. Results.

1. Feasibility of the new procedures. With the exception of the tambol ranking procedure (see paragraph c), no difficulty was encountered in applying the procedures in the four Amphoe. Some comments on specific procedures follow.

- a. The Amphoe Nomination Technique. In the four Amphoe, 49 officials were interviewed. The order

of difficulty of the three nomination-ranking items was as predicted, with Political being easiest, then Economic, then Social. The completion rates are shown in Table 5.2. In three Amphoe, officials ranked 12 villages; in the fourth, officials ranked 14 villages. In all cases, 6 villages were nominated. The procedure required, on the average, 45 minutes, and produced quite acceptable results.\*

Table 5.2. Amphoe Officials Completing the  
Nomination-Ranking Procedure  
(Total Interviewed = 49)

<u>Area</u>	<u>No. Completing</u>	<u>Per Cent</u>
Political	46	93
Economic	43	87
Social	41	83

The technique is almost certainly feasible without modification for samples  $\leq 25$ . Beyond that range, some modification of the ranking task would be recommended. Several alternatives are available from the literature on scaling; for field use, a relatively simple approach should be preferred. Our first choice would be (1) request that the set be sorted into five piles, (2) re-sort each pile into as many piles as the official wishes, permitting as much re-shuffling as desired, (3) compute standard scores on the assumption of equal intervals between piles.

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\*The "Amphoe are equal" assumption introduced relatively little error. The over-all AR-AS correlation was .84; the four within-Amphoe correlations varied from .82 to .95, with a mean value of .88.

- b. Village visits. Visits of very short duration proved sufficient to obtain all required data.\* The longest stay in a village was under four hours, the shortest slightly less than two hours. The observation procedure was quite satisfactory; the reliability coefficient (inter-observer) for the 15-item checklist was .91. Village data showed quite acceptable correlations with other sources (reported in subsequent sections of this chapter).
- c. Tambol ranks. As noted previously, we were unsuccessful in obtaining rankings from kamnan. Typically, a kamnan would name one or two villages as being better off economically and class other villages as being "all the same." Whether this reflects a reluctance to compare, or a lack of any basis for discrimination is not known; the consensus of the research team is that the latter is the more likely. Perhaps kamnan do not spend enough time in other villages to form an opinion.

There is no wholly adequate test of the "tambol are equal" assumption which is involved in the TR procedure. In the sample, each tambol is represented by three or four villages and these numbers are too small to permit within-tambol analyses.

Should a measure like TR be desired in the future, we would propose to use a two-stage process. The

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\*Some procedures included for experimental purposes only were not entirely successful. For example, the effort to obtain a Village Price Index by determining the selling price of ten standard items in village shops, created suspicion on the part of shopkeepers; a longer stay might make such inquiry less threatening.

first step would be to ask Amphoe officials to rank tambol. That ranking could then be used as a basis for adjusting the village-within-tambol rankings of the CD Worker. This procedure avoids the assumption of tambol equivalence. In some tambol an additional set of village ranks might be sought from a tambol police chief, a traveling merchant, or anyone likely to know all villages in the tambol. But for many cases, the CD Worker will be the only available judge.

2. Reliability of the measures. Reliability coefficients are presented in Table 5.3; all are split-half coefficients, extended by the Spearman-Brown formula. Several comments are in order concerning the data of Table 5.3.

First, all composite reliabilities are adequate, but some components are not reliably measured by some approaches.\* Specifically, the Political component is reliably measured only at the Amphoe, while the Social component is most adequately assessed at the village level. The Economic area is reasonably well-handled at all levels. The post hoc explanation is that political investments are best assessed at their focal point by officials who are exposed to representations from all villages of the Amphoe. Specific indicators of social investment, on the other hand, are really evident only at the village. The exception to the rule is AR, which provides

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\*The composite reliabilities reported in Table 5.3 are the computed values, not estimates based on the combination of components. A composite reliability will often be higher than any component because of its greater length.

highly reliable judgments of "how nice a given village is, as a place to live." Coupled with the low reliability of AS-Social, we suppose that AR is reflecting a general reputation largely devoid of specific information.

Table 5.3. Component and Composite Reliability Coefficients

<u>Measure</u>	<u>Political</u>	<u>Economic</u>	<u>Social</u>	<u>Composite</u>
Amphoe Ranks	.74	.87	.92	.92
Village Ranks	.50	.89	.33	.77
Amphoe Score I	.82(15)	.76(8)	.38(9)	.85
II	.80	.76	.31	.79
III	.84	.74	.23	.77
Tambol Score I	.19(8)	.56(13)	.49(8)	.74
II	.38	.31	.53	.74
III	.33	.44	.50	.76
Village Score I	.30(9)	.79(15)	.75(9)	.75
II	.33	.62	.73	.78
III	.18	.63	.69	.75
Team Visit Score I	.02(6)	.64(6)	.79(21)	.81
II	.09	.66	.66	.82
III	.28	.61	.78	.80

Note: I = natural item weights  
 II = equal item weights  
 III = rational item weights

Number of items  
 in parentheses

A second feature of the data is the reliabilities for TS, which are substantially lower than those obtained in our previous work. Since this score is the most thoroughly pre-tested one in the study, the discrepancy requires explanation. During the course of the field work, we learned that many of the CD Workers in the study area were but recently assigned to their tambol, as replacements for people who had either left the Department or had been transferred to other Amphoe.

Upon investigation, it was found that 20 of our villages had been described by CD Workers who had been assigned for less than one year. We then looked at the relationship between length of residence in the tambol and the number of items left blank on the Report Form. The data are presented in Table 5.4.\* It seems evident that CD Workers who have

Table 5.4. CD Worker Tenure and Items Not Answered

Length of Time in Tambol	Number of Villages	Average Number of Items Not Answered
Less than 12 months	20	5.8
12 to 16 months	16	5.0
More than 24 months	10	1.9

been assigned for at least two years can provide more descriptive information than can those who have been in their tambol for 16 months or less. And it is probable that the information provided by the more experienced is more reliable also.\*\*

A third fact is that reliability is not affected in any consistent manner, by the different weighting systems. While two of the least reliable components (TS-P and TVS-P) are improved by more sophisticated weighting schemes, two others (AS-S and VS-P) are degraded. For composites, there is no significant

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\*Length of stay was unknown for one CD Worker; number of villages is thereby reduced from 50 to 46.

\*\*The data from the 120 CD Workers in the Laem Cha Bang samples support this contention. The vast majority (80%) had been in one tambol for 2 or more years. Of the remaining number, most had been transferred within the Amphoe and consequently knew quite a lot about their villages even if resident in a tambol for less than a year.

difference and very nearly no difference at all, among the three. All subsequent analyses will be based on Model I; it is certain that analyses based on II and III would be in complete agreement.

3. Some links to previous work. The fifty villages in the present study were scored on those items from the CD Worker Report Form which had been used with both samples at Laem Cha Bang. The composite stanines which were obtained show the current sample to be slightly below the average of the previous 120 villages. The average stanine for the fifty is 4.7, with relatively low dispersion (standard deviation = 1.6).

Previous studies had compared scores obtained with the Report Form to judgments of high, average, or low made by the CD Worker. In order to present a similar comparison for the current study, Amphoe Ranks (AR) was taken as the analogue of the CD Worker's judgment; the distributions of composite stanines (AS + TS + VS + TVS) are shown in Table 5.5. The point triserial correlation for the data of Table 5.5 is .71 (values from previous work were .65 and .80). In general, the same relationship between scores and judgments prevail in the present study, but more detailed comparisons will be reported in the sections which follow.



Table 5.5. Composite Scores Versus Amphoe Ranks

	High	Average	Low
9			
8	1		
7	4		
6	4	5	
5	4	9	4
4		8	5
3			5
2			1
1			
Mean	6.2	4.9	3.8

4. Inter-source agreement: composites. The correlations between composites are shown in Table 5.6. Reliabilities from Table 5.3 are repeated (in parentheses) in the diagonal.

Table 5.6. Intercorrelations Between Seven Composite Measures of Village Investment

	AR	AS	TR	TS	VR	VS	TVS
Amphoe Ranks	(.92)	.84	.39	.63	.62	.47	.49
Amphoe Scores		(.85)	.31	.56	.51	.52	.42
Tambol Ranks			--	.57	.43	.37	.68
Tambol Scores				(.74)	.52	.35	.61
Village Ranks					(.77)	.46	.70
Village Scores						(.75)	.54
Team Visit Scores							(.81)

The data in Table 5.6 are encouraging. The matrix is positive; there is a statistically significant "hanging together" of seven efforts to measure one thing. At the same time, the magnitudes are not as uniformly high as one would wish them to be; Tambol Ranks is especially low. But reliability obviously plays a part in this; there is no reason to suppose TR to be reliable; it is based on one person's judgment, and rests on the untested assumption that "tambol are equal." If we eliminate sources known to be unreliable in this study (TS-P, TVS-P and TR-P,E,S) the matrix that results is shown in Table 5.7.

Table 5.7. Intercorrelations Between Six  
Reliable Composite Measures of Village Investment

	AS	TS	VR	VS	TVS
Amphoe Ranks	.84	.63	.62	.47	.68
Amphoe Scores		.57	.51	.52	.59
Tambol Scores			.54	.37	.64
Village Ranks				.46	.77
Village Scores					.62

Of the 15 coefficients given in Table 5.7, six are identical with those presented in Table 5.6; the nine which are altered are all of greater magnitude in Table 5.7. It is clear that if one's interest is in how well all seven measures agreed, Table 5.6 is the appropriate reference. Table 5.7 is a demonstration of current capability.\*

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\*This is viewed as a conservative statement; we have already suggested that routine collection of TS should be limited to CD Workers with two or more years residence in a tambol. Even without this proviso, strategies can be constructed which will be more adequate than Table 5.7 suggests. They will be presented later in this report.

5. Inter-source agreement: components. Table 5.8 on the following page presents the complete matrix of intercorrelations for the 21 scores (7 sources, 3 components each). It demonstrates in considerable detail, the conclusions drawn from Table 5.3. Some components are not reliably measured by some approaches. The matrix is positive except for two coefficients; both involve TVS-P, known to have zero reliability. Since the Economic component is most reliably measured, intercorrelations involving E are generally higher than those involving P or S.\* Similarly, if we average all correlations (from reliable and unreliable sources) to obtain a single three-component matrix, E is the only component which shows a higher correlation with itself than with its associates.\*\* These average coefficients (again using the r to z transformation) are shown in Table 5.9. But if the correlations of Table 5.8 are

<u>Table 5.9. Average Inter-Component Correlation from Table 5.8</u>			
	Political	Economic	Social
Political	<u>.37</u>	.40	.37
Economic		<u>.50</u>	.51
Social			<u>.42</u>

\*The average coefficients, using the r to z transformation are P = .38, E = .49, S = .44.

\*\*In Table 5.8, each 3 x 3 square representing the intersection of two sources, breaks down into one coefficient representing P-P, one representing E-E, one representing S-S, and two representing each pair of variables. Schematically, each square consists of:

r <sub>PP</sub>	r <sub>PE</sub>	r <sub>PS</sub>
r <sub>EP</sub>	r <sub>EE</sub>	r <sub>ES</sub>
r <sub>SP</sub>	r <sub>SE</sub>	r <sub>SS</sub>

and there are 21 such squares.

Table 5.8. Correlations Between Each Component  
As Measured by Each Source (decimal points omitted)

	AR			AS			TR			TS			VR			VS			TVS		
	E	S	P	E	S	P	E	S	P	E	S	P	E	S	P	E	S	P	E	S	P
AR-P	87	88		75	73	48	34	22	23	40	55	43	57	63	54	30	55	41	28	51	45
-E		89		63	69	54	33	25	22	42	58	54	47	62	54	16	66	50	11	62	55
-S				73	74	50	27	23	27	37	63	48	42	51	53	20	58	39	12	50	45
AS-P					53	27	07	01	16	24	36	28	34	23	32	20	27	17	30	17	29
-E					40		32	21	23	41	60	41	33	40	47	28	57	48	33	40	33
-S							37	24	18	22	42	36	19	36	42	28	51	40	-22	28	48
TR-P								71	60	49	33	40	29	57	11	22	45	36	38	41	69
-E									57	42	39	43	36	59	12	18	38	29	39	52	60
-S										27	39	21	36	55	22	10	18	14	52	46	57
TS-P											52	51	15	36	04	21	35	31	11	32	44
-E												36	32	31	42	40	33	23	16	28	47
-S													52	62	37	00	42	36	23	76	58
VR-P														73	72	25	34	38	50	67	46
-E															68	18	59	41	35	76	70
-S																41	48	35	15	63	44
VS-P																	29	24	-14	10	15
-E																		75	14	60	64
-S																			28	50	51
TVS-P																				30	28
-E																					53

first corrected for unreliability\* there is essential equality between the three components as shown in Table 5.10.\*\*

Table 5.10. Average Inter-Component Correlations  
when Table 5.8 is Corrected for Attenuation

	Political	Economic	Social
Political	<u>.80</u>	.79	.79
Economic		<u>.78</u>	.85
Social			<u>.87</u>

Table 5.10 is not offered as a better estimate of the truth, but as a demonstration of the fact that conceptually, the results of the present study are quite consistent with previously reported work. On the empirical level, some measures are not sufficiently reliable, but others are fully adequate for operational use. We will consider the practical implications of these results in Section D of this chapter.

6. Some other relationships. In both the 50-village study and in the second Laem Cha Bang sample, Index scores are significantly related to village size ( $r = .60$  and  $.58$  respectively). This relationship emerges despite the fact that many of our indicators are corrected for size (are expressed as a percentage of households rather than as an absolute number).

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\*Via the standard formula  $r'_{ij} = \frac{r_{ij}}{\sqrt{r_{ii} r_{jj}}}$

\*\*TVS-P was excluded from this analysis.

While the size effect could be statistically removed from the Index, our preference is to allow it to remain. We believe it reflects a fact of life about real world villages; larger villages are likely to be more viable economically and more convenient as places to live.

In all three samples there are modest but significant negative correlations between Index scores and travel time to the Amphoe town (low travel time higher investment). The correlations for these two variables (size and travel time) are shown in Table 5.11.

Table 5.11. Product-Moment Correlations  
between Index Scores, Village Size and  
Travel Time to Amphoe

	Size	Travel Time
Tryout I (N = 49)		
P	.15	-.44
E	.21	-.49
S	.30	-.33
Composite	.22	-.44
Tryout II (N = 71)		
P	.55	-.38
E	.58	-.41
S	.58	-.38
Composite	.58	-.40
Final Test (N = 50)		
P	.31	-.20
E	.32	-.32
S	.59	-.20
Composite	.60	-.29

7. The comparative costs of various approaches to measuring village investment. From the view of a data-collecting organization, the cost of collection is the sum of costs attributable to:

- a. personnel (salaries and other expenses of persons while traveling to and from collection sites, while at the collection sites, while processing the data, and while preparing reports of the results<sup>1</sup>,
- b. supplies and materials used (cost of expendables, amortized value of re-usable equipment used in collecting, analyzing, and reporting), and
- c. special non-recurrrable costs associated with instituting a new procedure.

From the view of the data supplier, the costs are those associated with the same three categories as they apply to the supplying element or organization. In research, it is common and generally permissible to ignore the costs to the supplier. In applied research which is directed toward institutionalizing an instrument or procedure for collecting data on a routine basis, the supplier costs may be the critical determiner of the success or failure of the effort. We will therefore consider both sets of costs in what follows, admitting that we are on firmer ground in our analysis of collection costs.

Table 5.12 is a summary of the per village personnel costs of collection (not of analyzing the reporting<sup>1</sup> for each approach, under two conditions. The first condition is that which prevailed in the fifty village study: data are collected on 12 villages, located in 3 or 4 tambol of an Amphoe. The second condition assumes that data are to be collected on 40 villages, located in 8 tambol of an Amphoe. The purpose of this second condition, which is obviously an extrapolation from our experience, is to show the differential effects of increased sample size on the several approaches. The estimates assume that phuyaiban, kamnan, and CD Workers will be contacted at the Amphoe, not at the village.

Table 5.12. Man-hour Collection Costs Per Village  
for Four Data Sources

<u>Source</u>	Man-hours per Village: 12 Villages per Amphoe	Man-hours per Village: 40 Villages per Amphoe
Amphoe (AR, AS) 13 officials	2.67	1.2
Tambol (TR, TS) CD Worker, Kamnan	1.0	.5
Village (VS) Phuyaiban	1.3	1.3
Village (VR, TVS) Observation, inter- view 3 to 4 village residents (includes travel)	6 to 8	5 to 7

The implications of the table are clear and hardly surprising. Amphoe and tambol costs are reduced as sample size increases; village visits have reduced travel time as the density of villages increases; total time spent interviewing phuyaiban is a direct function of the number to be interviewed. The second fact, also not surprising, is that the sources do have differential costs in collector man-hours. We will return to this fact after considering the other cost factors.

The other classes of personnel costs (for transcribing, scoring, transforming, reducing, etc.) are small in absolute magnitude and essentially invariant over sources. All analyses to date have employed nothing more complicated than desk calculators, and for routine operations, an adding machine would be sufficient. All data arrive in a form highly amenable to mechanical handling, however, and for very large scale work, a



computer would save a great deal of clerical labor. With current practices, one month of on-the-job training would equip the clerical staff of a typical agency to do all of the data processing required.

There are no appreciable material costs (category b) for any of the sources.

Start-up costs (category c) are largely associated with training (of interviewers, data processors, etc.) and vary with source. For collection, Tambol is cheapest; TR is entirely self-administering; TS is about 90% self-administering. Village (VS only) requires interviewers who can elicit information from phuyaiban. Village-visit teams (VR and TVS) require a higher skill level, but most agencies would have no difficulty finding suitable people for VS, VR, and TVS. A one-week training program should suffice; the interviews are concerned exclusively with factual information and the observational skills required for TVS are not difficult to develop. Requirements for Amphoe interviewers (AR, AS) are more stringent; agencies will prefer to send some of their more senior staff to head Amphoe teams, and the selection and training of team members will represent a greater investment on the part of the agency.

From the supplier point of view, the primary fact is that different people are involved in different sources. There are no start-up costs and minimal materials costs, but personnel costs are not trivial. For demonstration purposes, we will take an Amphoe of 150 villages, divided equally into 10 tambol. Assuming that investment data were to be collected semi-annually for every village, our best estimates of personnel costs to the data supplier are as follows:

- a. Amphoe (AR, AS). One man-day per year for each official heading a section (the Police Chief, but not each policeman). Approximate total: 15 man-days.
- b. Tambol (TR, TS). Four man-days per year for each tambol-level CD Worker; two man-hours per year for each kamnan.\* Approximate total: 42 man-days.
- c. Village (VS). Three man-hours per year for each phuyaiban (exclusive of travel). Approximate total: 56 man-days.
- d. Village (VR, TVS). Two man-hours per year for one school teacher and one priest (if any) in each village. One man-hour per year for one shopkeeper (if any) Approximate total: 56 man-days.

The totals for the four sources are not directly comparable, of course. The 56 man-days per year for VR and TVS may, on a cost-accounting ledger, be of lower magnitude than the man-day for the Nai Amphoe. It is certain that there would be no concerted opposition to the demands of a system which used the village school teacher, priest and shopkeeper as data suppliers; there might be opposition to an increased demand on the time of Amphoe officials.

8. The comparative value of various approaches to measuring village investment. Having presented some crude estimates of cost, we need some measure of the benefits to be derived from the various approaches. Ideally, a score obtained by a particular approach should be compared to the "true" score of the thing being measured; alternative approaches would then

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\*Acting as kamnan. The same person will also spend time acting as phuyaiban for his village.

be evaluated in terms of the degree to which each approximated the truth. In common with most research studies, the "true" score for our sample of villages is not known, and only approximate solutions are possible.

One standard approach is to assume that the best estimate of the true score is the average of all estimates, and to then compute the discrepancy between each set and the over-all average.\* Since each set of scores contributes to the over-all average, it is desirable (when the number of sets is small) to compare each set with the average of all other sets. In the case at hand, we would compare scores obtained from the Amphoe with the average of the scores obtained from tambol, village, and village visit. Table 5.13 presents data based on this type of comparison. It can be seen that the average error from using one data source (as opposed to using the

Table 5.13. Discrepancies between Each of Four Data Sources and the Average of the Other Three

	<u>Amphoe</u>	<u>Tambol</u>	<u>Village</u>	<u>Village Visit</u>
Average Discrepancy in Stanine	1.00	.94	.86	.83
Per Cent of Villages Within 1 Stanine	62	64	70	70
Per Cent of Villages Within .5 Stanine	28	42	52	48

other three in combination) is approximately 1 stanine. But clearly, some villages are far more discrepant; the maximum discrepancy is 3.17 stanines for one village score derived

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\*This is a fundamental theorem in psychometrics, supported by considerable evidence and elaborated in a quite respectable theory of measurement.

from the Amphoe. The two village-based sources show a slight superiority on all three criteria.

Using any two sources in combination leaves the other two as the standard of comparison. Three such comparisons are possible:

Amphoe + Tambol	vs	Village + Village Visit
Amphoe + Village	vs	Tambol + Village Visit
Amphoe + Village Visit	vs	Tambol + Village

The average discrepancy for the three comparisons of pairs is .36 stanines and 96% of all villages show discrepancies of one stanine or less. These data suggest that any pair represents an improvement over any single source.

#### D. Some Conclusions.

In two earlier chapters and in the preceding sections of the present one, data have been presented on applications of various forms of an Index of Village Investment to three samples of Thai villages. Of the 170 villages for which results were reported, 50 were studied more intensively and by a more diverse set of procedures than were the remaining 120. But the consistency of the results from the three separate studies is one of the more impressive outcomes of the work. In the brief summary which follows, results from all three tryouts will be used to portray the "current state of the art" in measuring village investment.

It has been demonstrated that:

1. Reliable measures of the construct "village investment" can be obtained through the use of relatively short sets of objective indicators.

Some components are not reliably measured by some of the present instruments, but (a) each component can be reliably

measured by more than one approach and (b) some moderately reliable procedures can certainly be upgraded. It seems fair to say that adequate reliability can be guaranteed for a variety of operational uses.

2. The components of the construct (political, economic, and social investments) are consistently and significantly related to one another

If investment behavior is a general village characteristic, then a measure of a particular type of investment (as political investments) would reflect both the general level of investment and the level specific to the type. In other words,

$$I' P = I_G + I_P'$$

where  $I' P$  is the measure obtained and  $I_G$  and  $I_P$  refer to general and political investment behaviors. Similarly,

$$I' E = I_G + I_E', \text{ and}$$

$$I' S = I_G + I_S'.$$

The presence in each measure of  $I_G$  would produce correlations between measures of P, E and S. If the obtained measures turned out to be uncorrelated, the postulate of a general characteristic would be untenable. If, on the other hand, the correlations were extremely high (.9) then only a general characteristic would remain, and the separate classes of investment would have no utility. Confirmation thus requires that the correlations be neither "very high" nor "very low." In the three studies reported, the correlations between components were:

	E	S		E	S		E	S
P	.57	.62		.67	.75		.62	.64
E		.57			.70			.55
	N = 49			N = 71			N = 50	

These data offer strong support for the utility of both composite (general) and component (specific) measures of investment.

3. Scores obtained from the objective instruments are consistently related to the evaluative judgments of experienced officials.

If investment is an important attribute of a village, a measure of investment should show substantial agreement with gross judgments of village progress made by knowledgeable officials. These judgments are not criteria against which the investment score is to be validated; but if there were no agreement between the two, one could defend the investment measure only by arguing that the products of investment were wholly invisible or that the officials were not really knowledgeable after all. In the three studies, the correlations between scores and judgments were:

	First Tryout	Second Tryout	Fifty Village Study
P	.66	.68	.56
E	.48	.62	.71
S	.58	.78	.55
Composite	.65	.80	.71

It is clear that village investment, as measured by objective indicators, is consistent with the general impressions of village progress held by Amphoe and tambol-level officials.

4. Comparable scores can be obtained via several approaches.

The average inter-source correlation (corrected for attenuation) is .90. The comparability of scores derived from Amphoe,

tambol, and village sources permits alternate strategies of measurement to be adopted in response to the different situations which would be encountered in large scale applications. Appendix A considers several such strategies. Procedures for measuring investment are flexible rather than rigid.

5. The measurement procedures are relatively inexpensive.

Costs and personnel requirements for both collection and analysis can be specified for any given application. They appear to be low enough to pose no obstacle to adoption by RTG agencies.

Taken together, the five conclusions can be summarized in the statement that:

6. There is an existing capability (instruments, procedures, instructions for use) for measuring the extent to which a village is investing its resources in political, economic and social development.

That this capability can and should be refined is beyond debate; there is no intent to suggest that the present versions of the Index represent the best that can be done. The data which have been presented were derived from an effort which covered but eight months from the initial conceptualization of the investment hypothesis to the preparation of the report. The project staff find the results at this stage very encouraging; each reader will, of course, reach his own conclusions on this matter.

We turn now, in the final chapter, to a brief resume of the essential next steps and to an equally brief consideration of a context within these may be accomplished.

## VI. RECOMMENDATIONS FOR APPLICATION AND RESEARCH

This report has described the development of procedures and instruments for measuring the degree to which the residents of a village are investing their resources in political, economic, and social development. The report concluded that the developmental phase was successful and that a crude but useful measurement capability now exists. In Section A below, we will discuss several possible uses of this capability by the RTG, assuming that no further development occurs. But further work is required if the apparent potential of the approach is to be realized. The essential steps are outlined in Section B. In the final section of the chapter, an application is described which would (1) permit the necessary research to be accomplished in an operational context, (2) institutionalize the capability in an appropriate RTG agency and (3) provide useful information to the agency while this capability was being developed.

### A. Some Routine Applications of the Index.

1. As a monitoring device for evaluating development. The Index of Village Investment is program-independent; it taps behaviors which may be encouraged in a variety of ways by a number of different programs. Further, the Index procedures contain no attributive mechanism; there is nothing in the system which attributes a particular investment behavior to a particular program input. The increased use of fertilizer in a given village may have resulted from the individual initiative of one villager, from a particularly persuasive radio appeal, from the efforts of an Amphoe Farmer Group, or from some other stimulus.

One use of the Index then, is as a gross measure of behavioral output which can be compared to gross measures of development



input to provide a general answer to the question, "How are we doing in area X?" In this application, the Index has some limited diagnostic value in that it will at least identify those villages which are not being affected by development efforts. But the major purpose, in this application, is to monitor, not to provide precise evaluations.

2. As a device for evaluating a particular program. Since the Index is program-independent, it may seem paradoxical to suggest its use in program evaluation. Its utility in this respect derives from facts such as the following:
  - a. In certain locales, one program may be the only one operating. In such rare cases, this application becomes a special case of the one described above.
  - b. A program knows what its inputs and goals are in a particular area, and needs to know whether or not the behavioral changes which it desires, are, in fact, occurring. It is seldom necessary to prove that one's program is uniquely responsible for an observed change; what is essential is to demonstrate that where the program operates, changes of the kind predicted can be observed. And because a program can control its inputs, it will sometimes be possible to use Index results in a more fine-grained analysis using a subset of indicators selected to be maximally sensitive to specified inputs.
  - c. For some of the practical decisions which must be made by a development program, a crude measure of status is perfectly adequate. One example which

arises frequently is a requirement usually imposed by some higher authority that a program respond to a newly critical problem without increasing its total resources. The issue facing the program is to determine where resources may be withdrawn at minimal cost to over-all program accomplishment. Index scores would obviously provide a rational basis for such a decision.

In short, the Index will often be satisfactory as an intermediate criterion of one program's impact. A measure designed specifically for one program should offer a more detailed statement of accomplishment, but the increase in fidelity is accompanied by a greatly reduced capacity for comparing one program with another. A measure which is program-independent will therefore always have some relevance to the evaluation of a particular program.

3. As a sample statistic for census-type comparisons. For national planning or assessment, the Index might be a useful statistic for Regional or other large-scale comparisons. For Regional comparisons, a 3 to 5% random sample of villages would be sufficient; to compare Changwad, as many as 10% might be required. But for such gross comparisons, the most easily obtained measure should be adequate, and VS or TS might be collected routinely on a very large scale at relatively low cost.

B. The Essential Next Steps.

1. The measurement of opportunity. The present versions of the Index deliberately ignore local differences in needs, oppor-

tunities, and resources. The need to consider variation in opportunity was acknowledged at the outset,\* but our tactic was to first develop a gross and inexpensive measure of investment. We adopted this approach because we were convinced that (a) differences in investment behavior were of sufficient magnitude to be revealed by relatively imprecise instruments, (b) knowledge about investment behavior would be of immediate usefulness to RTG program managers, and (c) except for the extreme cases, difference in opportunity is not the principal determiner of investment.

But a measure of opportunity can certainly add to our understanding; the treatment indicated for a low investment/low opportunity village is clearly not what is needed for a low/investment/high opportunity location. And a relatively gross measure of opportunity may be all that is required; a modest research effort may suffice.

2. Refinement of the investment index. As earlier reported, we started out with 250 examples of village investment. In the course of our work, we collected some data on approximately fifty indicators and extensive data on about thirty-five. As a first step in refining the Index, we need to develop a more complete description of the population of indicators from which our thirty-five are drawn.

- a. Villages that have attained different levels of development should differ in the kinds of investment that are most appropriate; to be fully effective the Index should be sensitive to such qualitative differences,

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\*The basic hypothesis (p. 16) recognizes that investment is necessarily constrained by "available opportunity."

and assign comparable scores to villages that are investing at comparable rates, however greatly the specific types of investment may vary. To achieve this, we need to know more about the total universe of investment behavior for rural Thailand.

- b. The Index should also be more sensitive to short-run changes which will often be small in magnitude. And again, this can be done only with a greatly expanded list of investment behaviors.
  - c. The Index should also be sensitive to intra-village differences in investment behavior. There has been considerable discussion of the probable importance of such identifiable classes as "village elites," the "young and able" villagers, the subsistence level families, etc. With expansion of the indicator pool and refinement of the instruments, it should be possible to determine investment levels for such clusters of villagers.
  - d. For any use of the Index, there should be "alternative forms" so that program managers are never tempted to "teach the test." In the ideal case, a form of the Index would be constructed for a specified use by randomly selecting items from specified item pools. Such a state could be approached if the indicator population were sufficiently large.
3. Research on disposing conditions. Considerable incidental information has been obtained on the "why" of village differences in investment behavior. We need more such information and it must be systematized in the form of hypotheses about the necessary and sufficient conditions for active

village investment. These are the prerequisites that were termed "disposing conditions" in the AIR proposal for the project.

Testing these hypotheses and thereby determining the nature of the key disposing conditions is an essential part of the research. For, knowledge of what conditions these are has two highly important action implications.

The first is for program impact assessment, for which measures of change in the disposing conditions offer a sharper criterion than does the Index itself. One reason is that the time lag between program results and changes in the disposing conditions is less than the time lag between program results and observable changes in investment behavior, and this makes it possible to obtain earlier feedback information. A second related reason is that the disposing condition which is most directly affected by a given program (e.g., the disposing condition of strong village leadership as a result of programs of leadership training) will clearly show a greater magnitude of change than will the over-all Index, which is the resultant of many factors, and therefore provide a more sensitive measure of the relatively small amount of impact that can be expected from a single action program. And a third, highly pertinent reason is that it is in the context of the disposing conditions that the role of security programs in village investment is articulated most clearly. For, even though such programs might appear unrelated to investment behavior, there almost certainly is a strong inhibitory effect on investment in locations where there is a sizeable CT threat, and a corresponding facilitative effect when adequate security is provided; and these impacts would be measured alongside the development program impacts as changes in the disposing conditions.

The second application of measures of the disposing conditions is in diagnosis and program planning. The Index score shows the current status of a given village with respect to population responses, but does not indicate what should be done to help the village do better. This would be shown more clearly by a profile of village status on each important disposing condition (leadership, security, communications, etc.) since it is toward the deficits that are found in these areas that remedial programming should be directed. For optimal program planning, both the over-all Index score and the profile of scores on disposing conditions should be provided.

4. Developing retrospective methods of obtaining Index scores.

Because of the considerable time lag that may be involved in the kinds of cause-effect relationships with which this research is concerned, it would be highly desirable to devise methods for determining what the status of village investment (and its disposing conditions) at a given location was two or three years ago. If this could be done, measuring the current status would permit longitudinal "follow-up" studies -- i.e., the assessment of change over a period of two to three years-- without waiting until 1973 or 1974 for the results to mature.

An effort to devise such retrospective measures will be carried forward concurrently with the other work of this phase. The major approach will be to try to use archival data, but other techniques, such as the use of aerial photography records, also will be applied. An exploratory study of the use of aerial photographs to obtain Index scores has already been completed and the technique appears promising. A report is in preparation.

5. Validation of the Index as a measure of resistance to subversion. There are two separable components of the validation task.

- a. Concurrent validation may be possible using some of the villages for which Index data have already been obtained. For some of the 170 villages in the current data base, it may be feasible to construct a "resistance" score from existing files of insurgent incidents. It will doubtless be difficult to obtain both "predictor" and "criterion" measures for the same time period, but approximate agreement is probably sufficient. While interpretations based on concurrent validation designs are always open to challenge, an effort of this kind should be made. We obtained one concurrent estimate in the study of fifty villages. The "validity coefficient" was significant (.41) but its meaning is ambiguous. More adequate designs can be employed in a subsequent effort.
- b. Predictive validation is the ultimate test. Index scores, corrected for "extent of available opportunities," are predictions of a village's current resistance. Given a study area with an active insurgent threat, efforts to subvert will occur and some such efforts will become known. Given access to available intelligence, an adequate predictive study should be possible within a 9 to 12 month period. An initial sample of approximately 300 villages appears essential if sufficient data are to accrue in a 12-month period.

C. An Application to Counterinsurgency Program Management.

In the preceding section, five essential research and development tasks were described. While each of these might be designed and carried out as an independent research task, a significant contribution could be made if all were conducted within an operational context where the Index data would be used and where new research findings served as feedback to the planners and operators.

Some characteristics of a desirable operational context are:

1. a defined geographic area of manageable size,\*
  - a. in which there is an active insurgent threat, and
  - b. for which a variety of new program inputs are being considered;
2. a defined locus of input control,\*\*
3. a high probability that the area will continue to receive special attention for at least a year, and preferably longer; and
4. a willingness on the part of program managers to try new approaches and procedures on the basis of the research findings.

Completing the research in an operational context of this kind would permit all of the project's objectives to be reached:

1. All information developed would be immediately available to the RTG officials responsible for program management.

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\*Two Amphoe, or target areas consisting of parts of several Amphoe. Three hundred villages may be a reasonable upper limit.

\*\*To minimize the probability that unexpected development efforts would occur in the study area.



2. The research staffs of the agencies involved would acquire the skills necessary to maintain and further develop the measurement techniques devised.
3. The impact assessment procedures would be institutionalized in appropriate agencies of the RTG.

The development of the institutional linkages which are necessary in order to mount such a project is the top priority task for AIR in the months ahead.

APPENDICES

APPENDIX B

TABLES

## APPENDIX A

### A STRATEGY FOR APPLICATION OF THE INDEX

Considering costs and adequacy (for all three Index components) of the several data sources, an efficient strategy varies with the availability of a tambol-level CD Worker.

Condition 1. A CD Worker has been resident in each tambol for at least 2 years.

- a. Administer CD Worker Report Form for each village of interest; take TS as initial estimate of a village's stanine.
- b. Reduce the sample size by removing those villages for which additional and discrepant information is unlikely to result in any decision which differs from one based on TS.\*
- c. For the reduced set, obtain AR and AS if possible. If not possible, obtain VS by completing CD Worker Report Form in interview with phuyaiban. Amphoe estimates are preferred because they provide better estimates of Political investments. But if the number of villages is very small, the per village cost of Amphoe data is high. Take the average stanine from the two sources as the best estimate of the village's position.
- d. If special treatments (demonstration projects, special development projects, etc.) are to be instituted in some villages (assumed to be a small percentage of the total), and if time and cost considerations permit, collect VR and TVS through a team visit to the

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\*Two possible criteria are: (a) remove all stanine 5 villages, and (b) remove all stanine 5 villages, the top half of stanine 4 villages, and the bottom half of stanine 6 villages. Criterion (a) would reduce the sample size by 20%; criterion (b) by approximately 40%. The choice would be based on practical considerations.

villages being considered. Take the average of all three sources as the best estimate.

Condition 2. A CD Worker has been resident for less than 2 years.

- a. Ask the CD Worker to complete a CD Worker Report Form for each village of interest, requesting that he verify each item about which he is uncertain. Assure him that the information is important, is going to be used, and must be accurate. Allow sufficient time for village visits in order for this to be done.
- b. Proceed as in previous examples.

Condition 3. The Amphoe is not a CD area or no CD Worker is currently assigned to the tambol.

- a. Complete the CD Worker Report Form through interview with the phuyaiban. Take VS as the initial estimate.
- b. Reduce sample as in previous examples.
- c. Obtain AR and AS. In the absence of a Tambol Score, no adequate substitute for AR and AS exists. If necessary, they could be based on a reduced set of officials; any six can provide a reliable AR; adequate indicator coverage for AS requires at least the Nai Amphoe or Palad Security, the Agriculture or Rice Officer, the Police Chief, the Palad for Development, the Education Officer and the Health Officer.
- d. Proceed as in previous examples.

Table A-1. Indicators Used and Officials  
Interviewed in Deriving Amphoe Score (AS)

	Nai Amphoe	Palad Administration	CD Amphoe	Police Chief	Palad Security	Rice/Agriculture Officer	Land Officer	Forestry Officer	Co-operatives Officer	Excise Officer	Education Officer	Health Officer	Veterinarian	Palad Development
<u>Area I. Indicators of economic investments.</u>														
1) Receptivity to advice on new methods in agriculture, animal husbandry, etc.												x		
2) Requests to Amphoe officials in connection with economic activities during the past six months		x				x	x	x	x	x		x		x
3) Existence of occupational groups		x												
4) Occupational training during the past year		x												
5) Active membership in agricultural groups						x								
6) Membership in co-operatives								x						
7) Existence of marketing groups		x												
8) Improvements in irrigation and agricultural practices during the past three years						x								

Table A-1. Indicators Used and Officials  
Interviewed in Deriving Amphoe Score (AS) (continued)

Area II. Indicators of political investments.	Nai Amphoe	Palad Administration	CD Amphoe	Police Chief	Palad Security	Rice/Agriculture Officer	Land Officer	Forestry Officer	Co-operatives Officer	Excise Officer	Education Officer	Health Officer	Veterinarian	Palad Development
1) Requests to Nai Amphoe, Palads for Administration and Security, and Police Chief during the past six months	x	x		x	x									
2) Written requests to Amphoe officials	x	x	x	x	x	x	x	x	x	x	x	x	x	x
3) Requests or complaints to the Changwad, Bangkok or to MP's	x	x	x	x	x									x
4) Outstanding compliance with government regulations	x	x		x	x		x	x						x
5) Responsiveness to Amphoe suggestions concerning community development projects	x	x	x	x	x	x			x				x	x
6) Projects completed on schedule			x											
7) Volunteers for VDC, VSO, VSDU, or other security units				x	x									
8) Active participation in the 1969 National Election campaign	x	x	x											
9) Leadership training (Village Development Committee, Sapa Tambol) during the past year			x											
10) Existence of organized village groups			x											

Table A-1. Indicators Used and Officials  
Interviewed in Deriving Amphoe Score (AS) (continued)

	Nai Amphoe	Palad Administration	CD Amphoe	Police Chief	Palad Security	Rice/Agriculture Officer	Land Officer	Forestry Officer	Co-operatives Officer	Excise Officer	Education Officer	Health Officer	Veterinarian	Palad Development
11) Existence of community funds			x											
12) Complaints against government agencies during the past year	x	x	x	x	x	x	x	x		x			x	x
13) Frequent violation of government regulations				x										
14) Active resistance of government authority	x	x	x	x	x	x	x	x						x
15) Appearance in the Police Log during 1970				x										
<u>Area III. Indicators of social development.</u>														
1) Requests to the Amphoe Health and Education Officers during the past six months										x	x			
2) Receptivity to advice on modern health practices											x			
3) Special health or sanitation programs											x			
4) Villagers being educated beyond Prathom 4										x				
5) Villagers currently attending the Amphoe Matayom Soeksa School(s)										x				



Table A-1. Indicators Used and Officials  
Interviewed in Deriving Amphoe Score (AS) (continued)

	Nai Amphoe	Palad Administration	CD Amphoe	Police Chief	Palad Security	Rice/Agriculture Officer	Land Officer	Forestry Officer	Co-operatives Officer	Excise Officer	Education Officer	Health Officer	Veterinarian	Palad Development
6) High village support for education										x				
7) Special requests for improvements to the village school during the past year.										x				
8) Existence of organized social groups (Youth, CD-WAY, recreation, school and temple committees)			x											
9) Youth, CD-WAY, home economics or health programs during the past year			x											

Table A-2. Indicators and Range of "Natural" Scores  
Used in Deriving Tambol Score (TS)

<u>Area I.</u>	Indicators of economic investments.	Score Range
*	1) Use of fertilizer	0 - 3
*	2) Use of insecticide	0 - 3
*	3) Use of improved seed	0 - 3
	4) Improvements in irrigation during the past year	0 - 2
	5) Non-rice farming occupations	0 - 1
*	6) Households in non-rice occupations	0 - 1
	7) Buses	0 - 3
	8) Village-owned buses	0 - 3
*	9) Shops	0 - 4
	10) Rice mills	0 - 4
*	11) Villagers taking seasonal employment last year	0 - 3
	12) Economic groups	0 - 1
	13) Agricultural or occupational training during the past year	0 - 2
<u>Area II.</u>	Indicators of political investments.	
	1) Requests to the Amphoe during the past six months	0 - 3
	2) Letters or petitions to RTG agencies during the past two years	0 - 1
	3) Frequency of visits to the Amphoe on village business	0 - 3
	4) Percentage of villagers voting in the 1969 General Election	0 - 2
	5) Frequency of village development committee meetings	0 - 2
	6) Existence of organized village groups	0 - 1
	7) Leadership training during the past year	0 - 2

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\*Expressed as a percentage of number of households.

Table A-2. Indicators and Range of "Natural" Scores  
Used in Deriving Tambol Score (TS) (continued)

		Score Range
**	8) Leaders who are merchants	0 - 4
<u>Area III. Indicators of social development.</u>		
	1) Condition of houses	0 - 3
	2) Condition of temple	0 - 3
	3) Monks and novices	0 - 3
	4) Condition of school	0 - 2
	5) Highest class in school (N.B. all schools within 2 kms. of village count as being <u>in</u> the village)	0 - 2
*	6) Villagers being educated beyond Prathom 4	0 - 4
	7) Social groups (e.g. Youth, CD-WAY, recreation, temple committee)	0 - 1
	8) Youth, CD-WAY, home economics, health training during the past year	0 - 2

\*Expressed as a percentage of number of households.

\*\*Expressed as a percentage of village leaders.

Table A-3. Indicators and Range of "Natural" Scores  
Used in Deriving Village Score (VS)

<u>Area I.</u> Indicators of economic investments.		Score Range
* 1)	Use of fertilizer	0 - 3
* 2)	Use of insecticide	0 - 3
* 3)	Use of improved seed	0 - 3
	4) Improvements in irrigation during the past year	0 - 2
	5) Non-rice farming occupations	0 - 1
* 6)	Households in non-rice occupations	0 - 1
* 7)	Villagers renting tractors	0 - 2
	8) Buses	0 - 3
	9) Village-owned buses	0 - 3
* 10)	Shops	0 - 4
	11) Rice mills	0 - 4
* 12)	Villagers taking seasonal employment last year	0 - 3
	13) Economic groups	0 - 1
* 14)	Membership of economic groups	0 - 3
	15) Agricultural or occupational training during the past year	0 - 2
<u>Area II.</u> Indicators of political investments.		
1)	Requests to the Amphoe during the past six months	0 - 3
2)	Letters or petitions to RTG agencies during the past two years	0 - 1
3)	Frequency of visits to the Amphoe on village business	0 - 3
4)	Percentage of villagers voting in the 1969 General Election	0 - 2
5)	Percentage of villagers voting in the last village election	0 - 2

\*Expressed as a percentage of number of households.

Table A-3. Indicators and Range of "Natural" Scores  
Used in Deriving Village Score (VS) (continued)

	Score Range
6) Frequency of village development committee meetings	0 - 2
7) Existence of organized village groups	0 - 1
8) Leadership training during the past year	0 - 2
** 9) Leaders who are merchants	0 - 4
<u>Area III. Indicators of social development.</u>	
1) Condition of houses	0 - 3
2) Condition of temple	0 - 3
3) Monks and novices	0 - 3
4) Condition of school	0 - 2
5) Highest class in school (N.B. all schools within 2 kms. of village count as being <u>in</u> the village)	0 - 2
* 6) Villagers being educated beyond Prathom 4	0 - 4
7) Social groups (e.g., Youth, CD-WAY, recreation, temple committee)	0 - 1
* 8) Membership of social groups	0 - 3
9) Existence of school fund	0 - 2

\*Expressed as a percentage of number of households.

\*\*Expressed as a percentage of number of village leaders.

Table A-4. Indicators, Method of Measuring,  
and Range of "Natural" Scores Used in  
Deriving Team Visit Score (TVS)

<u>Area I. Indicators of economic investments.</u>		Method	Score Range
*	1) Shops	Obs.	0 - 4
	2) Sales to non-villagers	Int.	0 - 2
	3) Buses, trucks	Obs.	0 - 3
*	4) Sewing machines	Int.	0 - 2
	5) Rice mills	Int.	0 - 3
	6) Economic facilities (Reservoir, potable water, market, electricity)	Obs.	0 - 2
<u>Area II. Indicators of political investments.</u>			
	1) Receptivity to advice on development and agricultural innovation	Int.	0 - 1
	2) Attempts are made to solve village problems	Int.	0 - 1
	3) The village has solved some of its problems	Int.	0 - 1
	4) Participation of abbot in community activities	Int.	0 - 1
	5) Method of selection of temple committee	Int.	0 - 2
	6) Political facilities (security unit, Tambo development center)	Obs.	0 - 1
<u>Area III. Indicators of social development.</u>			
	1) Condition of houses	Obs.	0 - 2
	2) Improvements to houses	Obs.	0 - 1

\*Expressed as a percentage of number of households.

Table A-4. Indicators, Method of Measuring,  
and Range of "Natural" Scores Used in  
Deriving Team Visit Score (TVS) (continued)

	Method	Score Range
3) Houses under construction	Obs.	0 - 1
4) Houses have flowers, fences, kitchen gardens, new paint, tiled or tin roofs	Obs.	0 - 4
5) Use of privies	Obs.	0 - 1
6) Condition of school	Obs.	0 - 2
7) Highest class	Int.	0 - 2
8) Per cent of students in attendance on the day of the team's visit	Int.	0 - 1
9) Per cent of teachers resident in the village	Int.	0 - 2
10) Is the teacher being interviewed resident in the village?	Int.	0 - 1
* 11) Villagers studying beyond Prathom 4	Int.	0 - 4
12) Villagers in technical or vocational schools	Int.	0 - 1
13) Existence of a school fund	Int.	0 - 1
14) Literacy rate	Int.	0 - 2
15) School projects during the past year	Int.	0 - 1
16) Condition of temple	Obs.	0 - 2
17) Improvements to temple during the past year	Int.	0 - 1
18) Existence of temple fund	Int.	0 - 1
19) Quality of completed projects	Obs.	0 - 2
20) Social facilities (public sala, health center, playground)	Obs.	0 - 2
21) Concrete or artesian wells or potable water	Obs.	0 - 1

Table A-5. Composite Stanines for Fifty Villages  
As Measured by Seven Sources

<u>Villages</u>	<u>Sources</u>						
<u>Amphoe Sawang Daen Din</u>	<u>AR</u>	<u>AS</u>	<u>TR</u>	<u>TS</u>	<u>VR</u>	<u>VS</u>	<u>TVS</u>
Bo Kae Noi	2	3	4	3	2	3	3
Bo Kae Yai	3	4	5	5	3	4	4
Nong Muang	2	4	4	4		4	
Kok Lao	4	5	3	5		4	
Bung No	7	5	7	6	4	4	5
Thung	5	5	4	6	3	4	3
Nong Saen Paen	4	5	3	4	4	3	3
Tan Kon	8	8	7	7	6	6	6
Nong Lak Chang	6	7	7	5		6	
Thung Kam	5	5	7	5		5	
Nong Haeng Lao	4	6	3	4		5	
Kae Dam	4	5	3	3		5	
<u>Amphoe Wanoniwat</u>							
Kok Kong	5	4	4	5	6	4	4
Hua Na	5	5	4	5	4	3	3
Hat Sai Mun	8	6	5	7	7	6	5
Kut Chan	4	4	5	4		4	
Na Thon	2	3	4	4		4	
Dong Bang	4	5	4	4		4	
Nong Hang	6	6	4	5		4	
Tan Dteo	4	4	5	5		5	
Non Tae	5	5	4	3	3	5	3
Kok Sa-at	3	4	2	3		3	
Si Wichai	7	7	5	5	9	6	6
Don Daeng	6	7	5	5	4	6	4
<u>Amphoe Na Kae</u>							
Dong Luang	4	4	9	8	8	5	8
Pone Daeng	4	3	7	5	5	5	4
Piat	2	3	5	4		3	
Sok	2	2	5	4		3	
Nong Yang	4	2	3	2		2	
Nong Nao	5	4	5	5	4	4	5
Nong Bua	6	6	7	6	5	8	8
Lao	4	4	4	6		4	



Table A-5. Composite Stanines for Fifty Villages  
As Measured by Seven Sources (continued)

<u>Villages</u>	<u>Sources</u>						
<u>Amphoe Na Kae (cont.)</u>	<u>AR</u>	<u>AS</u>	<u>TR</u>	<u>TS</u>	<u>VR</u>	<u>VS</u>	<u>TVS</u>
Na Khu	8	8	6	7	8	6	6
Nam Bo	7	6	4	5		5	
Kam Om	7	5	4	5	7	5	6
Khaen Nang	5	5	4		5	4	4
<u>Amphoe Kuchinarai (King Amphoe</u>							
<u>Kao Wong)</u>							
Na Khu	9	9	9	9	8	5	8
Kut Ta Klai	5	6	4	6	4	6	4
Wang Wiang	4	4	7	6	4	5	5
Na Kadac	4	4	3	7	5	5	5
Phu Laen Chang	8	7	8	8	6	7	5
Non Sala	5	5	4	3	6	7	5
Chan	5	5	5	4	5	5	5
Nong Hang	3	4	7	2		4	
Kok Kong	4	4	7	5	6	5	5
Nong Phu	5	5	5	5		7	
Kut Kok	4	4	5	4		4	
Som Poi	4	5	5	5		7	
Kok Mali	5	5	5	4		7	
Pore Pisai	4	4	5	4		8	